

INDORE SMART CITY ABD MASTER PLAN (FINAL)



Prepared & Submitted by



Contents

CHAPTER 1: PROJECT BACKGROUND 14

1.1 Smart city mission: GOI 14

 1.1.1 Smart city Features 14

 1.1.2 Smart city Strategy 15

1.2 Smart city challenge: Indore 17

1.3 Smart City Proposal (SCP): Indore 17

 1.3.1 ABD Area Delineation 17

 1.3.2 Retrofitting model 18

 1.3.2.1 Why Retrofitting? 18

 1.3.3 ABD Area Proposal under SCP 19

CHAPTER 2: APPROACH & METHODOLOGY 21

2.1 Base Map Preparation 21

 2.1.1 Availability of Data 21

2.2 Approach And Methodology 22

 2.2.1 Collection of Ground Control Points 25

 2.2.2 Geo-Rectification of Satellite & Other Data 26

 2.2.4 Digitization of Various Layers 27

 2.2.5 Topographic Survey 27

 2.2.6 Land use Survey 28

 2.2.7 Survey Data Superimposed In GIS 29

 2.2.8 Preparation of Base Map 29

 2.2.9 Preparation of Contour Map 31

 2.2.10 Preparation of Digital Elevation Model (DEM) 32

 2.2.11 List of symbols in Base Map 33

 2.2.12 Cartographic Principles 34

2.3 Engineering Surveys 35

 2.3.1 Geotechnical Investigation 35

 2.3.2 Construction Material 38

 2.3.3 Availability of Contractors 39

CHAPTER 3: CITY PROFILE: INDORE 40

3.1 About Indore 40

3.2 Linkages & Connectivity 41

3.3 City Growth & Evolution 42

3.3 Physical Characteristics 47

3.3.1 Physical Features 49

3.4 Demography 49

3.5 Planning Interventions 51

3.5.1 Indore Development Plan 1991 51

3.5.2 Indore Development Plan 2021 52

3.5.3 Planning Units 52

CHAPTER 4: ABD AREA: STUDY AND ANALYSIS 54

4.1 Introduction to ABD Area 54

4.1.1 Location 54

4.1.2 Boundaries and Area 55

4.1.3 Demography 57

 4.1.4 Significance of ABD Area 59

4.2 Existing Landuse 62

 4.2.1 Residential and Mixed Use 64

 4.2.2 Commercial Use 66

 4.2.3 Public-Semipublic Use 70

 4.2.4 Facility & utility 72

 4.2.5 Transportation 73

 4.2.6 Recreation 74

 4.2.7 Open Area 75

 4.2.8 Water Body 76

 4.2.9 Building Heights 77

4.3 Infrastructure Gap Assessment 78

 4.3.1 Water supply 79

 4.3.1.1 Present Water Supply sources; 79

 4.3.1.2 Water Input from All sources to ABD Area 79

 4.3.1.3 Direct Supply points 80

 4.3.1.4 Present Service Reservoirs 80

 4.3.1.5 Distribution System 81

 4.3.1.6 Service Connections 82

 4.3.1.7 Bore wells in Project Area 82

 4.3.1.8 Water Quality 83

 4.3.1.9 Gap Assessment 83

4.3.2 Sewerage..... 85

 4.3.2.1 Present Disposal..... 85

 4.3.2.2 Gap Assessment..... 86

4.3.3 Solid Waste 87

 4.3.3.1 Waste collection: Present Scenario 87

 4.3.3.2 Gap Assessment..... 88

4.3.4 Storm Water Drainage 88

4.3.5 Traffic and Transportation 88

 4.3.5.1 Background 88

 4.3.5.2 Current Scenario 89

 4.3.5.3 Traffic Volume Count Analysis 90

 4.3.5.4 Parking Survey..... 94

 4.3.5.5 Pedestrian Count Survey..... 99

 4.3.5.6 Existing Traffic management..... 100

 4.3.5.7 Suggested traffic management measures 104

4.3.6 Social Infrastructure..... 105

 4.3.6.1 Educational Facilities..... 105

 4.3.6.2 Healthcare Facilities 106

 4.3.6.3 Socio-cultural Facilities 106

 4.3.6.4 Public Safety..... 107

 4.3.6.5 Other Facilities 107

CHAPTER 5: PROPOSED LAND USE..... 109

5.1 Vision..... 109

5.2 Proposed Development Policy..... 110

 5.2.1 Movement Pattern..... 110

 5.2.2 Riverside Green 116

 5.2.3 Commercial Area..... 116

 5.2.4 Residential Area 117

 5.2.5 Mixed Use 118

 5.2.6 Public Semi-Public Use 118

 5.2.7 Facilities and Utilities 119

 5.2.8 Transit Oriented development..... 120

 5.2.9 Redevelopment of Land 121

5.3 Proposed Land-Use Zoning 125

5.4 Conclusion..... 127

CHAPTER 6: URBAN DESIGN GUIDELINES 128

6.1 Goals 129

 6.1.1 Retaining Existing Mix of Uses and Businesses 129

 6.1.2 Connectivity 129

 6.1.3 Pedestrian Realm 129

 6.1.4 Attractive and Vibrant Streetscape 130

 6.1.5 A Pedestrian-Friendly District 130

 6.1.6 Unique Features 130

 6.1.7 Distinct District 130

 6.1.8 Environmentally Sustainable Development 131

 6.1.9 Economically Viable Development 131

6.2 Urban Design Guidelines 132

 6.2.1 Positioning & Land Use 132

 6.2.2 Public Realm 132

 6.2.3 Heritage Walk 133

 6.2.4 Building Form 135

 6.2.5 Building Height 137

 6.2.6 Building Edge 138

 6.2.7 Building Use 140

 6.2.8 Pedestrian Network 141

 6.2.9 Plaza and Open Space 146

 6.2.10 Riverfront Development 149

 6.2.11 Other Works within Core Area 150

 6.2.12 Sustainability 152

 6.2.13 Night Lighting Guidelines 153

CHAPTER 7: RESOURCE FUNDING ANALYSIS 157

7.1 Value Capture Finance 157

 7.1.1 Introduction 157

 7.1.2 Current Source of Revenue 157

 7.1.3 What Is Value Capture Finance? 158

CHAPTER 8: DEVELOPMENT CONTROL REGULATIONS 160

8.1 Introduction 160

8.2 Applicability 160

8.3 Jurisdiction 160

8.4 Definitions 162

8.5 Land-Use Zoning..... 176

 8.5.1 Land-Use & Uses Permitted 176

 8.5.2 Proposed Zoning 176

 8.5.3 Permissible & Non-Permissible Uses as per Use-Zones..... 177

 8.5.4 Circumstances Under Which Existing Non-Conforming Uses Will Be Allowed to Continue..... 184

8.6 Regulations For Zones – R, RC, C..... 186

 8.6.1 Permissible Uses 186

 8.6.1.1 Permissible Uses for Residential Zone (R), Residential-Commercial Zone (R-C) & Commercial Zone (C) 186

 8.6.1.2 Applicable Zones as per Road width 186

 8.6.2 Development of Land..... 188

 8.6.2.1 Amalgamation of Land-parcel..... 188

 8.6.2.2 Development on kabrastan, burial ground etc. 188

 8.6.3 Permissible Floor Area Ratio (FAR) For R, RC & C 189

 8.6.3.1 Relaxation in Floor Area Ratio (FAR)..... 190

 8.6.3.2 Areas not counted towards computation of FAR 190

 8.6.4 Building Height..... 191

 8.6.4.1 Maximum Permissible Height 191

 8.6.5 Margins 192

 8.6.5.1 Road Side Margins for Residential and Non-Residential Uses..... 192

 8.6.5.2 Build-to-Line..... 193

 8.6.5.3 Side and Rear Margins 194

 8.6.5.4 Permissible Uses in Margins 194

 8.6.5.5 Restricted Use in Margins 196

 8.6.6 Permissible Ground Coverage..... 197

 8.6.7 General Basement Requirements..... 197

 8.6.7.1 Margins 197

 8.6.7.2 Height of Basement 198

 8.6.7.3 Permissible Uses in Basement 198

 8.6.8 Parking 199

 8.6.8.1 Private Parking (On the plot)..... 199

 8.6.8.2 Public Parking..... 205

 8.6.9 Premium/Charges for Mixed-use, Commercial-Use, Additional F.A.R. & Parking in Respective Zones..... 211

8.7 Value Capture Finance 212

8.7.1 Value Capture Fund 212

8.7.3 Premium on additional FAR. 212

8.7.4 Premium on Mixed use. 213

8.7.5 Premium on Parking..... 214

8.7.6 Premium on Plot amalgamation. 214

8.8 Regulations for Zones – PSP, G, T 216

8.8.1 Permissible Uses 216

 8.8.1.1 Permissible Uses in Public-Semi-Public (PSP) 216

 8.8.1.2 Permissible Uses in Recreational Zone (G) 216

 8.8.1.3 Permissible Uses in Transport Zone (T)..... 216

 8.8.1.4 Permissible Uses by Road width 217

8.8.2 Permissible Floor Area Ratio (FAR) For PSP, G, T 218

8.8.3 Building Height..... 218

8.8.4 Maximum Permissible Height 218

8.8.5 Margins 218

 8.8.5.1 Road Side Margins for PSP, G & T Uses..... 218

8.8.6 Permissible Ground Coverage..... 218

8.8.7 Parking 219

8.9 Regulations for Environmentally Conserved Green Zone (CG)..... 220

8.10 Regulations for Redevelopment Parcels..... 221

8.10.1 Permissible Uses 221

 8.10.1.1 Permissible Uses for Redevelopment area lying in dominant zone as per Map No. 1..... 221

 8.10.1.2 Permissible Uses by Road width 222

8.10.2 Development of Land..... 222

8.10.3 Permissible Floor Area Ratio (FAR) For Redevelopment Parcels 222

8.10.4 Building Height..... 223

 8.10.4.1 Maximum Permissible Height..... 223

8.10.5 Margins 223

 8.10.5.1 Road Side Margins for Redevelopment Parcels..... 223

 8.10.5.2 Minimum Margin between Buildings 223

 8.10.5.2 Permissible Ground Coverage..... 223

8.10.6 Parking 223

8.11 Regulations for Urban Heritage Area..... 225

8.11.1 Applicability..... 225

8.11.2 Restriction on Development/Redevelopment/Repairs, Etc. 225

8.11.3 Power to Alter, Modify The List Of Heritage Buildings And Heritage Precincts 226

8.11.4 Grant of Transferable Development Rights In Case Of Loss Of Development Rights..... 226

8.11.5 Grading of The Listed Buildings/ Listed Precincts 226

8.12 Urban Design Regulations 230

8.12.1 Step Backs 230

8.12.2 Corner Articulation: 230

8.12.3 Mandatory Building Line 231

8.12.4 General Note 231

8.12.5 Mandatory Façade guidelines 243

8.12.6 Extensions to Existing Buildings 243

8.12.7 Advertisements / Signage 244

8.12.8 New Shopfronts / Renovated Building 244

8.12.9 Buildings in Heritage Zone 245

8.12.10 Advertisements in Heritage Zone 245

8.12.11 Street Specific Guidelines 246

8.13 Energy Efficient Building Regulations. 247

8.13.1 Provisions and Applicability 247

8.13.2 Roof Top Solar Energy Installations 247

8.13.2.1 Incentives 247

8.13.3 Green building Norms 248

8.13.3.1 Incentives 248

CHAPTER 9: IMPLEMENTATION PLAN 249

9.1 Implementation Plan 249

9.2 Development Phasing 257

9.3 Institutional Framework..... 263

9.4 Financial Plan 266

9.5.1 Costs 266

9.5.2 Resources Plan 273

REFERENCES 274

List of Figures

Figure 1: Collection of GIS Data	23
Figure 2: Methodology of Base Map Preparation	24
Figure 3: Steps of GIS Data Processing	25
Figure 4: Location of DGPS and Level Points	26
Figure 5: Sample of a Grid, its Satellite Image & Survey Sheet	29
Figure 6: Layer Superimposition.....	29
Figure 7: Base Map of ABD Area	30
Figure 8: Contour Map of ABD Area	31
Figure 9: DEM of ABD Area	32
Figure 10: List of Symbols in Base Map	33
Figure 11: List of Colour Codes in Land Use	33
Figure 12: List of Symbols in Survey Map	34
Figure 13: Important Map Elements	35
Figure 14: Indore Metropolitan Region: Source IDP,1991	Error! Bookmark not defined.
Figure 15: Planning Units of Indore (IDP-2021)	Error! Bookmark not defined.
Figure 16: Location of ABD in Planning Area	Error! Bookmark not defined.
Figure 17: Coverage of Administrative Zones in ABD Area	Error! Bookmark not defined.
Figure 18: Wards in ABD Area	Error! Bookmark not defined.
Figure 19: Gross Population Density Distribution in ABD Area	Error! Bookmark not defined.
Figure 20: Net population density distribution in ABD Area	Error! Bookmark not defined.
Figure 21: Existing Land Use of ABD Area	63
Figure 22: Residential Use in ABD Area	64
Figure 23: Traditionally Developed area in ABD	65
Figure 24: Commercial Use in ABD Area	66
Figure 25: Specialized Markets in ABD Area	69
Figure 26: PSP Use in ABD Area	71
Figure 27: Facilities & Utilities in ABD Area	72
Figure 28: Road Network in ABD Area	73
Figure 29: Recreational Use in ABD Area	74

Figure 30: Open Space in ABD Area.....	75
Figure 31 Abandoned/Dilapidated houses	76
Figure 32: Floor Map of ABD Area	77
Figure 33: Location of ESRs in ABD Area	80
Figure 34: Water Supply Distribution Network in ABD Area	81
Figure 35: Location of Bore Wells in ABD Area	82
Figure 36: Sewerage Network in ABD Area.....	85
Figure 37: Registered vehicular growth for base year and horizon period	89
Figure 38: TVC Survey Locations and Peak Hr Flow	90
Figure 39 Average Volume accumulation graph for surveyed locations.....	91
Figure 40 Vehicle composition.....	91
Figure 41 Average composition of Passenger Traffic.....	92
Figure 42 Fast and slow moving traffic	92
Figure 43: Parking Survey Stretches	94
Figure 44: Composition of parked vehicles	95
Figure 45: Sub-zoning of No-vehicle Zone.....	99
Figure 46 signalized intersection at Gurudwara Square (on left)one way regulation at .Nandlalpura sabji mandi road (right side)	101
Figure 47 merging diverging segregation at Mau naka Chowk (Left side), barricades on roads to ensure saftey (right side)	101
Figure 48 peak hour heavy traffic on Jawahar marg	102
Figure 49 perpendicular and direct conflicts in major intersections	102
Figure 50 lack in footpath, zebra crossing and no safety measures for pedestrian movement	103
Figure 51 illegal roadside encroachment.....	103
Figure 52 Proposed Road Network Map	111
Figure 53 No-Vehicle Zone in ABD.....	113
Figure 54: Pedestrian streets in Heritage Precinct Area	114
Figure 55: Schools identified for Shared Open Space	119
Figure 56 Sites identified for Redevelopment	123
Figure 57 Proposed Land use Area Share	125

Figure 58 Proposed Land-use Map..... 126

Figure 59 Streets identified to be considered under heritage walk & Facade treatment 134

Figure 60 Value Capture Methods 159

Figure 61 Basement 165

Figure 62 building Line 165

Figure 63 Built-up-Area..... 167

Figure 64 Carpet Area 167

Figure 65 Frontage of Plot 171

Figure 66 Road Side margin..... 193

Figure 67 Side and Rear Margins 194

Figure 68 Parking permitted in margins 196

Figure 69 Height of Basement 198

Figure 70 Dimension for parking layouts 210

Figure 71 Sample Street strip Plan..... 217

Figure 72 Corner articulation 230

Figure 73 ROW 7.5 mt..... 232

Figure 74 ROW 9 m 233

Figure 75 ROW 12 mt 235

Figure 76 ROW 15 mt 236

Figure 77 ROW 18 mt 238

Figure 78 ROW 24 mt 240

Figure 79 ROW 30 mt 242

Figure 80 Organization Structure 264

Figure 81 Organogram for Stakeholder Role..... 265

Figure 82 Source of Finance 273

List of Tables

Table 1: Soil Test Result for Roads Identified under Fast Track Projects	37
Table 2: Decadal Population Growth of Indore	Error! Bookmark not defined.
Table 3 Ward wise Gross & Net population Density	Error! Bookmark not defined.
Table 4: Unorganised Markets in ABD area	68
Table 5: Projected Population in ABD area	78
Table 6: Future Water Demand.....	84
Table 7: Generation of Sewage in Future	86
Table 8: Location Wise Demand Calculation	96
Table 9: Parking Volume with type of vehicle	96
Table 10: Parking Standards as per abutting Land Use	96
Table 11: Standard Formulated for Calculation of Parking Demand in ABD area	97
Table 12: Parking Demand in ABD Area.....	97
Table 13: Parking Demand in No Vehicle Zone	98
Table 14: Existing number of vehicles parked in Night by the Residents residing in Non-motorized Zone	99
Table 15: Existing Requirement of Educational Facilities in ABD Area	105
Table 16: Existing Requirement of Healthcare Facilities in ABD Area	106
Table 17: Existing Requirement of Socio-cultural Facilities in ABD Area.....	106
Table 18: Existing Requirement of Facilities for Public Safety in ABD Area	107
Table 19: Existing Requirement of Other Facilities in ABD Area	107
Table 20 Name & Location of Redevelopment sites	121
Table 21 Proposed Land use area distribution	125
Table 22 Proposed Zoning.....	176
Table 23 Permissible & Non-permissible Uses as per-Zone	177
Table 24 Applicable Zones as per Road widths	186
Table 25 Permissible Commercial Use as per floor Level	187
Table 26 FAR Table	189
Table 27 Maximum Permissible Height	191
Table 28 Marginal open space as per plot & Road Widths.....	192

Table 29 Permissible Ground Coverage**Error! Bookmark not defined.**

Table 30 Parking requirements 200

Table 31 Dimension for car bays..... 205

Table 32 Premium/ Charges 211

Table 33 FAR for PSP, G & T 218

Table 34 Permissible Ground Coverage for PSP, G & T Zone 218

Table 35 Permissible uses of a Redevelopment Parcel lying on specified predominant land-use 221

Table 36 Permissible FAR for Redevelopment Parcels 223

Table 37 Grading of the Listed Buildings/ Listed Precincts 226

Table 38 Front step back..... 230

Table 39 Urban Design Regulations for street with less than 9m RoW. 232

Table 40: Urban Design Regulations for street with RoW 9m 233

Table 41: Urban Design Regulations for roads with RoW 12m and 15m 234

Table 43: Urban Design Regulations for roads with RoW 24m 239

Table 44: Urban Design Regulations for roads with RoW 30m 241

Table 45 Norms for Roof top solar PV 247

Table 46 Project Cost 249

Table 47 Project Timeline 257

Table 48 Project cost & Source of Finance 266

CHAPTER 1: PROJECT BACKGROUND

1.1 Smart city mission: GOI

Smart Cities Mission is an effort by the Government of India to drive India into the age of advancement through economic growth. This advancement rests on the shoulders of India's cities, which are the engines of economic growth, contributing 63% of India's GDP, even though only 31% of the population resides in these urban areas.

1.1.1 Smart city Features

- Promoting mixed land use in area based developments—planning for 'unplanned areas' containing a range of compatible activities and land uses close to one another in order to make land use more efficient. The States will enable some flexibility in land use and building bye-laws to adapt to change;
- Housing and inclusiveness - expand housing opportunities for all;
- Creating walkable localities –reduce congestion, air pollution and resource depletion, boost local economy, promote interactions and ensure security. The road network is created or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary administrative services are offered within walking or cycling distance;
- Preserving and developing open spaces - parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effects in Areas and generally promote eco-balance;
- Promoting a variety of transport options - Transit Oriented Development (TOD), public transport and last mile para-transport connectivity;
- Making governance citizen-friendly and cost effective - increasingly rely on online services to bring about accountability and transparency, especially using mobiles to reduce cost of services and providing services

without having to go to municipal offices. Forming e-groups to listen to people and obtain feedback and use online monitoring of programs and activities with the aid of cyber tour of worksites;

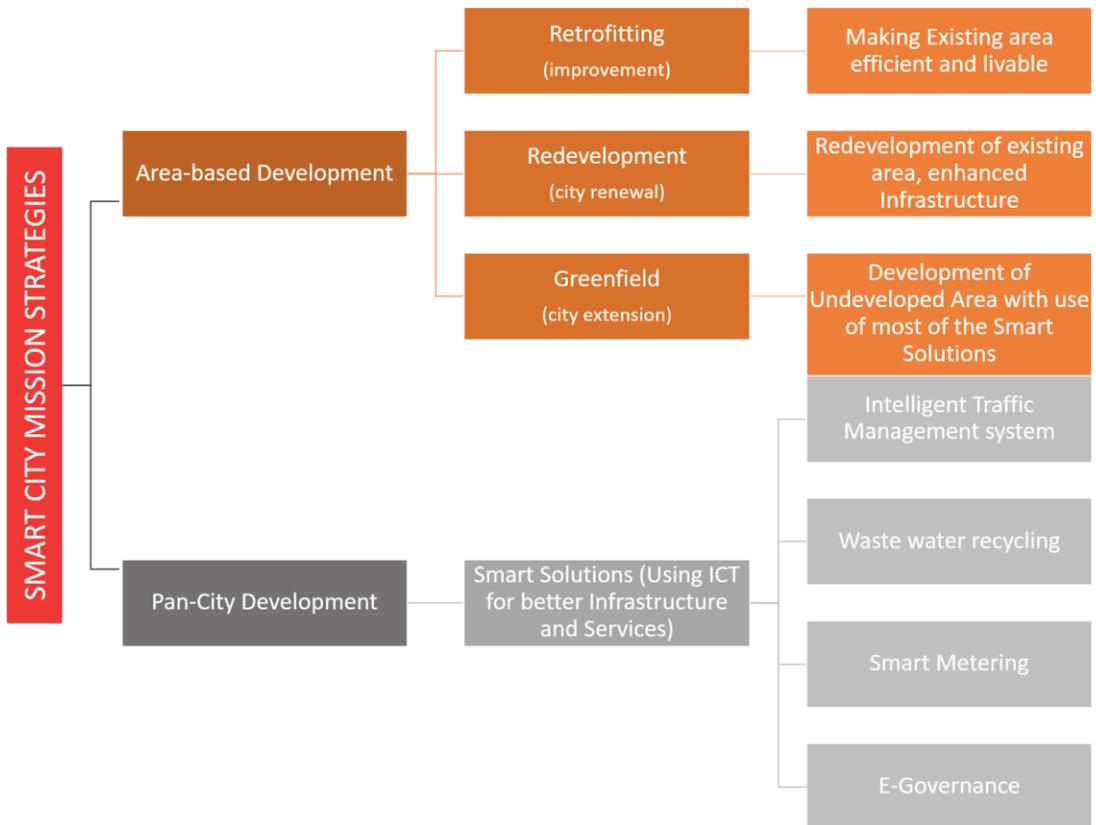
- Giving an identity to the city - based on its main economic activity, such as local cuisine, health, education, arts and craft, culture, sports goods, furniture, hosiery, textile, dairy, etc;
- Enhancing the Identity of the city by supporting the built heritage by launching special programmes and financing research and projects concerning conservation, renewal and revitalisation of historical centres, traditional urban cores and buildings.
- Applying Smart Solutions to infrastructure and services in area-based development in order to make them better. For example, making Areas less vulnerable to disasters, using fewer resources, and providing cheaper services

1.1.2 Smart city Strategy

The strategic components of Area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Below are given the descriptions of the three models of Area-based Smart City Development:

1. **Retrofitting** will introduce planning in an existing built-up area to achieve Smart City objectives, along with other objectives, to make the existing area more efficient and livable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens.
2. **Redevelopment** will affect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens.

3. **Greenfield development** will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population. Unlike retrofitting and redevelopment, greenfield developments could be located either within the limits of the ULB or within the limits of the local Urban Development Authority (UDA).
4. **Pan-city development** envisages application of selected Smart Solutions to the existing city-wide infrastructure. Application of Smart Solutions will involve the use of technology, information and data to make infrastructure and services better.



1.2 Smart city challenge: Indore

Smart cities 'Challenge' or competition is the method to select cities for funding and using a strategy of area-based development. Indore has carried one of the widest citizen's engagement programme for shaping of vision, goals & strategies, selection & planning of ABD & Pan-city proposal. The exercise was extensive both in terms of participation as well as diversity of mediums used. The extent of citizens involved more than 25% of the city population (with 591965 interactions through all mediums). And Indore having historical background starting from the 1800's is a challenge accepted by the city to make its identity stronger and enhance its associational values.

Indore has been successful in the competition for implementation of smart solutions in the first phase on the basis of its Smart city proposal (SCP). This SCP consisted of an AREA- BASED DEVELOPMENT (ABD) as well PAN-City solution. The Proposal was scored based on the quality of city-level criteria like vision and goals, strategic plan etc. and the quality of proposals for ABD as well as PAN-city solution.

1.3 Smart City Proposal (SCP): Indore

1.3.1 ABD Area Delineation

Indore ABD proposal is based on Retrofitting model spreads across a contiguous land parcel, comprising of a total area of 742 Acres.

The choice of Rajwada (CBD/Downtown Area) as ABD area was based on popular, practical and strategic considerations. The Core Area (1845 acres out of 68200 acres of Municipal Area) is inhabited by approximately 9% of the population and provides employment to more than 11% of the work force. Over & above this, the majority of population has indirect links to this area. The selected ABD (742 acres) is a part of Rajwada Core Area which also has a history starting from the early 1850's in shaping the development of the city.

Area delineation has been done considering transportation linkages, physical features (rivers), coverage of traditional markets, Heritage buildings and ensuring mix of different social and income groups.

1.3.2 Retrofitting model

Retrofitting was selected as a strategy for ABD keeping in mind replicability issues as most areas in Indore will require retrofitting to be transformed as smart city areas and to preserve & enhance the existing heritage of the city. Retrofitting is being coupled with a Redevelopment Component to ensure land availability for provision of smart features and smart public facilities. The Redevelopment of selected Govt Land parcels in the area will also help monetize land making the Smart City Proposal (SCP) financially viable.

1.3.2.1 Why Retrofitting?

Since the land parcels for the new development in prime locations are scarce, the options available for rejuvenating CBDs are retrofitting and redevelopment. Redevelopment entails high capital expenditure, however retrofitting comparatively takes time, and has lower capital investment. People will need to invest in developing building facades, common areas within the building premises and in making the buildings energy efficient. The agencies responsible for the CBD (government agencies such as urban local body (ULB)/parastatal or private entities) will need to invest in both physical and technology infrastructures in order to adopt smart solutions across the CBDs. Retrofitting using smart components will improve the quality of life and delivery of services for the CBD residents which will further unlock the inherent land value of the CBD. Smart components are envisioned to make services available to citizens at the touch of their fingertips and will also make enough information available to citizens to help them customize their lifestyle and improve their standard of living with sustainable consumption.

1.3.3 ABD Area Proposal under SCP

ABD proposal titled "Rajwada Rejuvenation", combines retrofitting with redevelopment to improve the core of the city. The components of ABD proposal which include all essential features among other additional features, which are:

1. **Transport and walkability:** Road development, intersection improvements to ensure walkability and safety through use of street design guidelines for TOD, no-vehicle zone with smart parking & battery operated e-rickshaw, real-time air quality monitoring & Intelligent Transport System (ITS - integration with pan-city proposal),
2. **Redevelopment of public land:** compact-high-density-mixed-use, walkable community with slum-housing, affordable housing, shared public open spaces (both neighborhood & sector level), shared parking, 85% built-up to be green buildings, rooftop solar power plants generating 25% of energy demand, rainwater harvesting & its re-use.
3. **Water-supply, wastewater management & sanitation:** 24/7 water-supply system with SCADA, 100% smart metering, DEWATS, reuse of recycled wastewater and underground storm water drainage
4. **Solid waste management:** 100% collection and segregation, environment friendly & economical transportation and disposal of waste (waste to energy through bio-digesters)
5. **Power supply & efficiency:** 24/7 uninterrupted power through SCADA enabled smart power distribution grid & smart metering
6. **Underground electrification & shifting/laying of other utilities:** Utility ducts, shifting of power & Telecom lines, laying of OFC network, gas network and other utilities
7. **IT connectivity & IT enabled govt services:** 100% public Wi-Fi connectivity, common backbone OFC network to integrate with pan-city proposals, command & control center with adequate software/hardware & city dashboard for urban governance and services

8. **Safety and security:** Smart & energy efficient street-lighting incl pedestrian area & public open spaces, CCTV for surveillance & traffic monitoring, fire hydrants network

Apart from above-mentioned essential features following additional features have been proposed based on the city's vision, goal and strategic blueprint

1. **Riverfront development** - tapping of sewers, lining of river flow, development of green areas & walkable pedestrian pathways, public open spaces along river and opening up of the river front.
2. **Identity & culture:** Built-heritage conservation, heritage street development with facade treatment
3. **Economy and Employment:** Incubation centers, skill development centers, use of schools (afterhours) for START Smart – an inclusive open learning initiative for skill development.
4. **Health & education:** Development of new smart healthcare facility, provision of Wi-Fi hotspots & smart class-rooms and facilities in school
5. **Piped natural gas distribution network**
6. **Incentives to guide TOD** and Redevelopment on private land.

Pan-city solutions are ICT backed. The primary proposal is to create a backbone Communication Network, Central Command and Control Center for multipurpose use with a dashboard for real-time data analysis and information dissemination. This shall help in implementing the two city wide services - Intelligent Transportation System and Intelligent Solid Waste Management.

CHAPTER 2: APPROACH & METHODOLOGY

2.1 Base Map Preparation

Remote sensing technology is essential to the development of many spatial data sets for the study of environmental process. GIS complements remote sensing by providing the framework for integrated spatial analysis of diverse data structures in order to help understand and parameterize land surface processes. GIS also has a role in developing and tailoring integrated spatial data sets, including remote sensing derived thematic layers, for input to models. This study introduces spatial data issues involving data collection strategies, the use of cartographic and remote sensing products as sources of digital data, digital characteristics of spatial databases, and archival sources.

2.1.1 Availability of Data

Many diverse types of spatial data are needed to study and understand dynamic process, as well as to develop the simulation models that are needed for scientific assessment of planning related problems and effects of human interactions on quality. Multi-disciplinary data sets of land surface/subsurface characteristics are essential inputs to such studies. The multi -objective models require data on the multi-temporal behavior of land properties, as well as the parameterization of spatially heterogeneous and complex, landscape characteristics. Such spatial data sets are needed for different decision support systems and increasingly use an integrated/coupled systems approach to modeling process across multiple time, space scales and helps in identification of suitable sites for different applications.

Main data collected are the documents related to planning of the city and area based development– Maps and report prepared during Smart City Challenge proposal, latest Satellite imagery, land use etc., City Development Plan, Master Plan, City Sanitation Plan, City Mobility Plan etc.

The following data has been collected for preparation of Base Map-

- Worldview-2 satellite data of 0.5m Spatial Resolution of January 2016.
- ABD area boundary (in cad format)
- Ward boundary (in cad format)
- Major landmark (in cad format)
- Property tax survey
- Plot boundary and building boundary
- Other secondary data (in cad format)

2.2 Approach And Methodology

Remote sensing and GIS techniques have been effectively used to arrive at a scientifically accurate base map and many other thematic maps of ABD area to aid in planning and decision making. Satellite data with spatial resolution of 0.5 m has been used to extract the baseline data collected and other natural resource information required in the preparation of the Base map. The same has been integrated into GIS environment for easy visualization, query and analysis.

A Base map means many things to many people, but in the context of GIS and mapping, a good base map contains relevant information from various sources that support cartography and mapping. There are four stages involved for preparing a base map, which are -

- Data Collection
- Total Station Survey
- GIS Integration
- Superimpose all data

As shown in the figure below, GIS is an integrated data platform from satellite image, TSS data and GPS data, collected on site to prepare accurate maps of the site, both raster and vector.

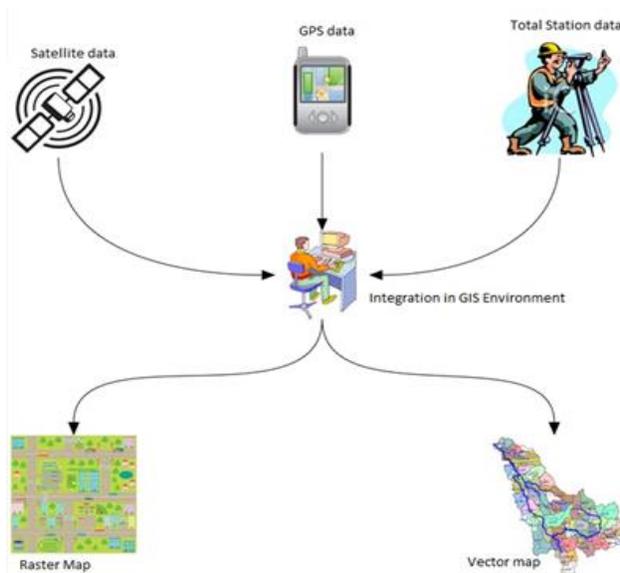


Figure 1: Collection of GIS Data

Base map for the ABD area contains existing features of the site (742 Acres) like roads, additional 30m buffer from ABD boundary, plot boundaries and important landmarks. As this will form basis of any analysis to be done and subsequent decision making in the planning as well as design stage, accuracy of base map is of utmost importance. Base map for the ABD area was used as backdrop to prepare thematic maps like Land-use, population density, circulation etc.

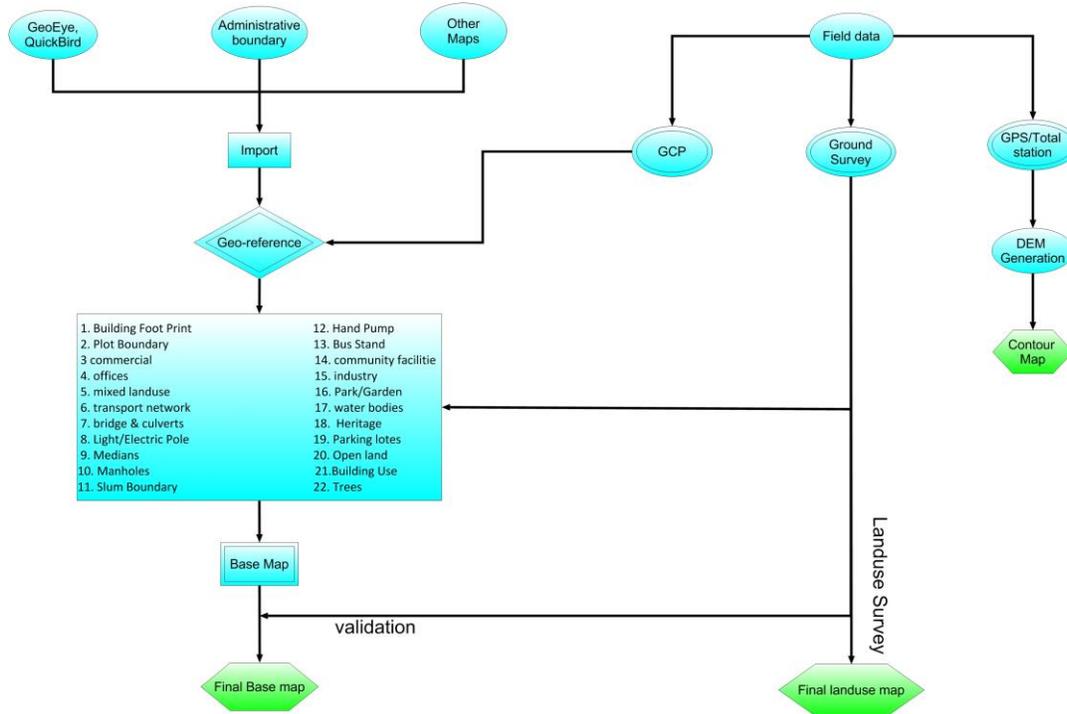


Figure 2: Methodology of Base Map Preparation

Base map mapping has included preparation of thematic maps for getting an overall idea of the area in terms of density, building heights, landuse, open built ratio, lack of electric pole of public and green open spaces, heritage zones and conservation areas if any & specialized markets. Below process has been followed.

GIS data model

GIS output represents the pinnacle of many GIS projects. Since the purpose of information systems is to produce results, this aspect of GIS is vitally important to many managers, technicians, and scientists. Maps are a very effective way of summarizing and communicating the results of GIS operations to a wide audience. The importance of map output is further highlighted by the fact that many consumers of geographic information only interact with GIS through their use of map products. A map is the final outcome of a series of GIS data processing steps beginning from data collection to output (ref. figure)

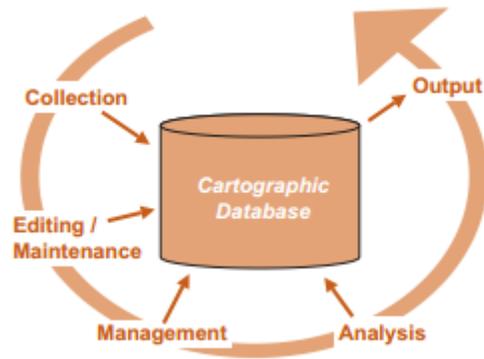


Figure 3: Steps of GIS Data Processing

2.2.1 Collection of Ground Control Points

Geo-referencing of high-resolution satellite data requires accurate Ground Control Points (GCPs) to establish strong relationship with ground coordinate system and for final product generation. To meet this requirement, a Differential GPS (DGPS) survey was conducted and accurate GPS readings from 16 points were collected as a part of this project that were uniformly distributed across the study area.



Figure 4: Location of DGPS and Level Points

2.2.2 Geo-Rectification of Satellite & Other Data

Remote Sensing (RS) in conjunction with Geographical Information System (GIS) is emerging as an important tool for carrying out specific planning related applications. These techniques are used especially in the preparation of Base maps, layers for Heritage Site Management Inventory of the cultural resources, Predictive location modelling studies and so on.

Latest available satellite imagery has been provided by ISCDL (Indore Smart City Development Limited). The imagery as conceived by us, is sub-meter resolution satellite image which has been procured a year. The digital alignment of a satellite or other available maps of the same area has been done as geo-rectification. In geo-rectification, 21 number of corresponding control points,

such as street intersections, are marked on both the image and the map. It is used as a base layer of the base map. Positional accuracy of individual product or image, internal distortions within any image and seamlessness across images (image-to-image) are carried out through checkpoints. Only those products which pass through this quality verification should be used.

2.2.4 Digitization of Various Layers

Digitizing in GIS is the process of converting geographic data either from a hardcopy or a scanned image into vector data by tracing the features. The digitization process has been included vectorization, symbolization, layering, edge matching, topological integrity, and data base linking. During the digitizing process, features from the traced map or image are captured as coordinates in point, line, or polygon format. The following layers were digitized from the satellite data in GIS -

- Building footprint
- Vacant land
- Roads
- Streets
- Open Spaces
- Gardens
- Culverts
- Bridge
- Parking lots
- Water bodies

2.2.5 Topographic Survey

A **topographic survey** includes measurements of the vertical elevation of the surface being surveyed as well as the artificial structures on it. A detailed topographic survey of the study area was carried out using total station survey technique. The Survey captured entire physical and topographical features

visible on or above surface. Below mentioned features were taken by the surveyors.

- Number of Buildings floor
- Building foot prints
- Plot boundaries
- Vacant land
- Roads
- Streets
- Trees
- Manholes
- Bore wells
- Public buildings
- Open spaces
- Gardens
- Culverts
- Light poles
- Electric poles
- Sub stations
- Footpath
- Medians
- Fences
- Compound walls
- Bus stands
- Parking lots
- Water bodies: Drain, Canals, Rivers etc.
- Map spot level

2.2.6 Land use Survey

Existing Land use map is an essential input for preparation of Master Plan of an area. Total 10 grids were prepared for land use survey along with survey sheet.

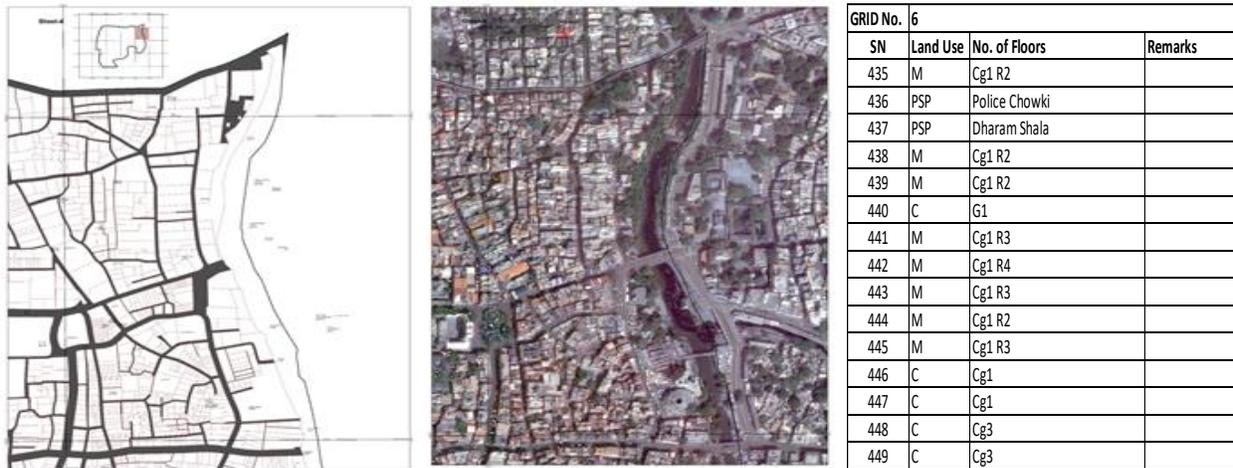


Figure 5: Sample of a Grid, its Satellite Image & Survey Sheet

2.2.7 Survey Data Superimposed In GIS

All the surveyed data were converted into shape file files and geographically corrected through reference points. Various layers have been created and superimposed each other in proper manner for further process.

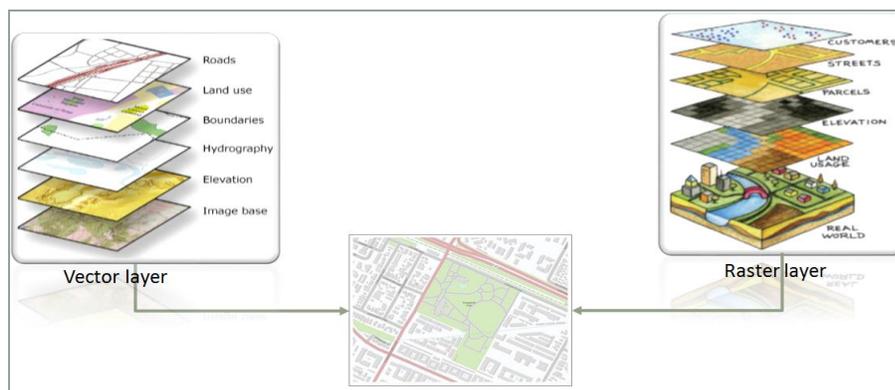


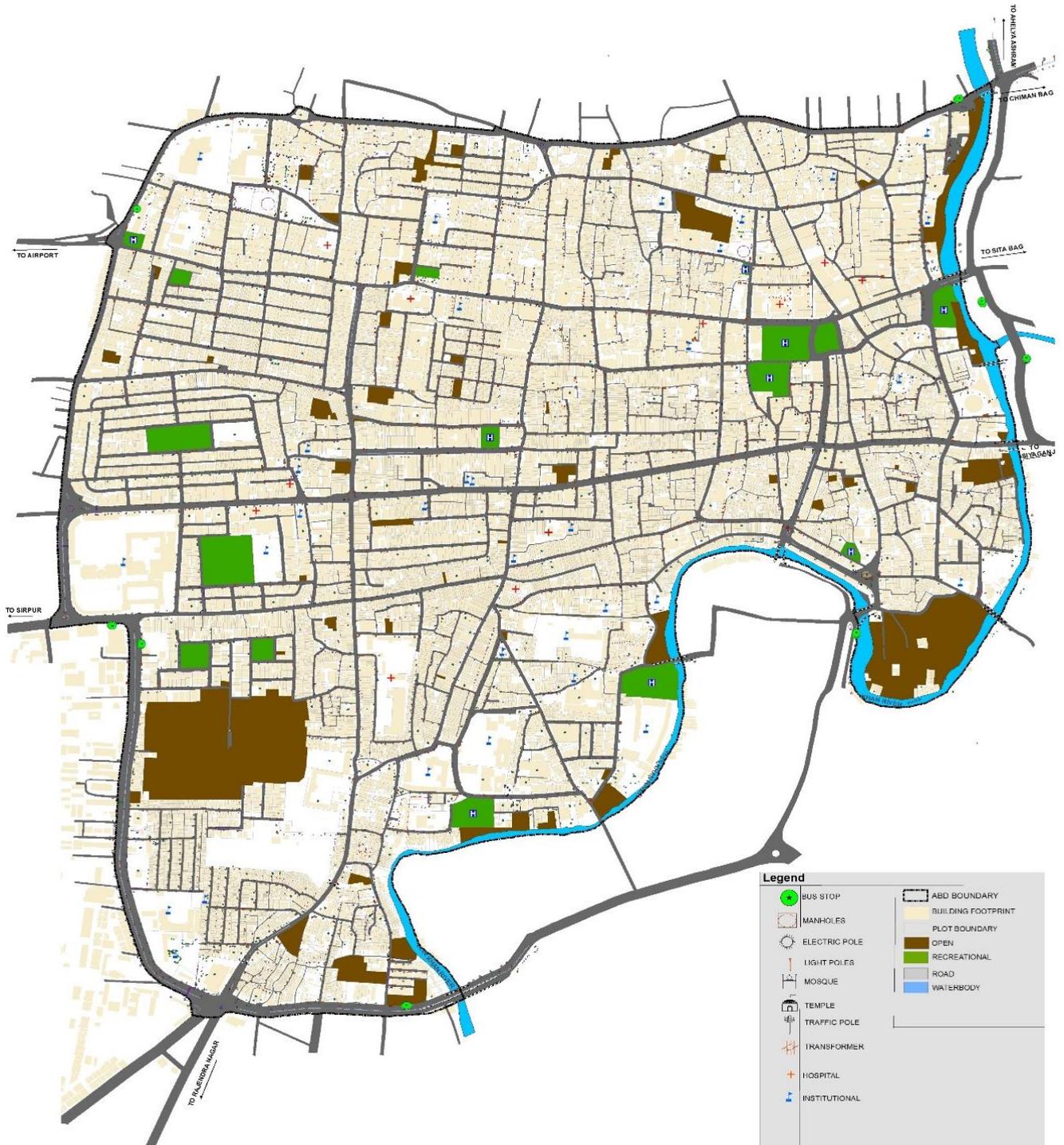
Figure 6: Layer Superimposition

2.2.8 Preparation of Base Map

The most crucial pre-requisite for preparing a Master Plan is an accurate and updated Base Map of the planning area consisting of physical features, topography, drainage pattern, water bodies, road network, rail, forest area, settlement areas spatial extent of development. Base map was prepared from survey and digitized data including all the generated layers. The Base Map along with a report on various gaps identified were consolidated and prepared.

The Base map has made available in soft copy (software independent geo-database file). Hard copy maps in duplicate at A2 size for submitting.

Figure 7: Base Map of ABD Area



2.2.9 Preparation of Contour Map

Contour overlays of 0.5 meter contour interval have generated by total station survey using. The contours are to be interpolated and superimposed on to the base map by taking proper controls. Level point are also being incorporated at every 20m interval along the road on final contour map as suggested by the client. The survey has to be initiated at local SOI Benchmark at Rajwada,

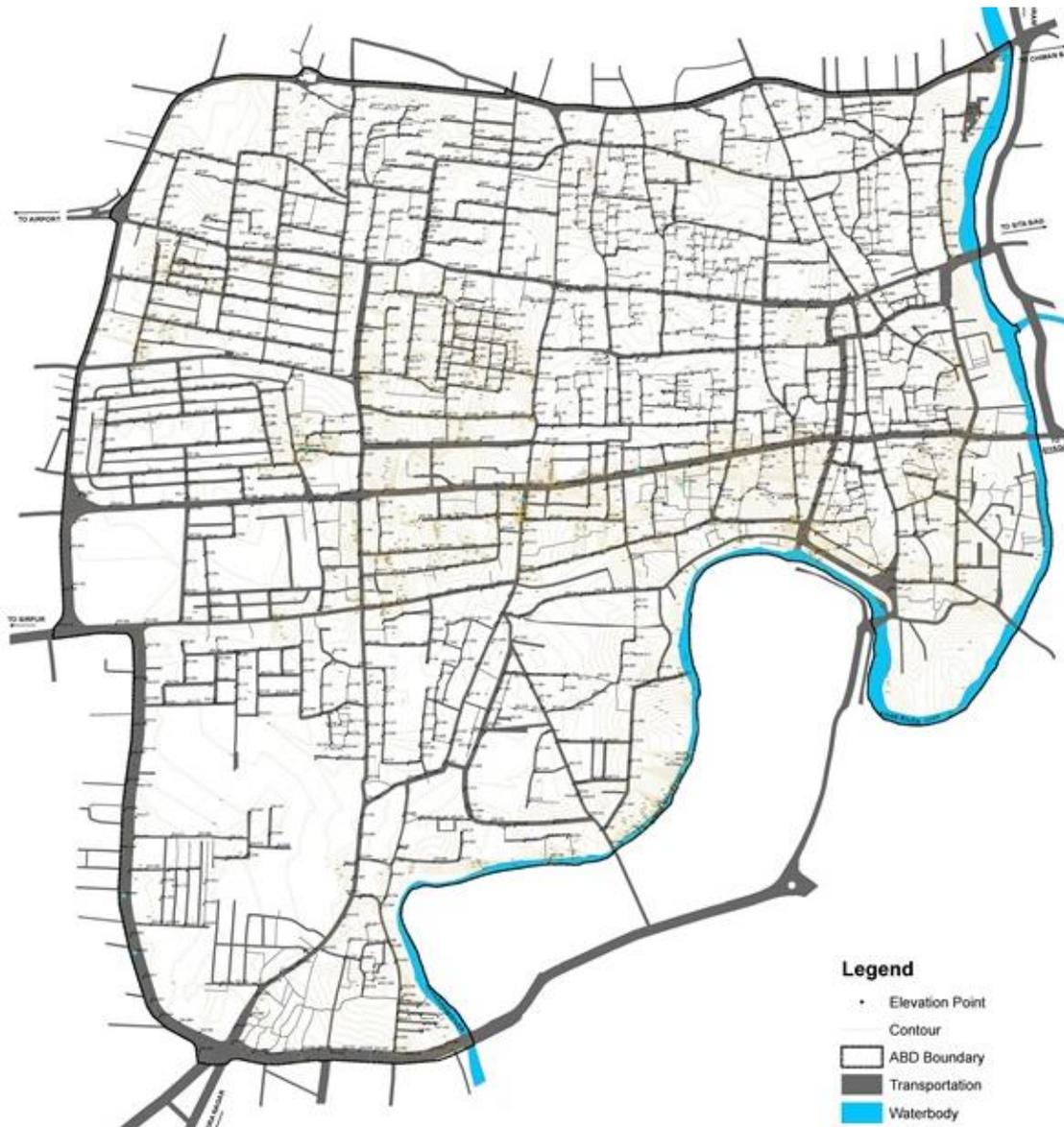


Figure 8: Contour Map of ABD Area

2.2.10 Preparation of Digital Elevation Model (DEM)

A digital elevation model (DEM) is a digital model or 3D representation of a terrain's surface — commonly for a planet (including Earth), moon, or asteroid — created from terrain elevation data. DEM was generated from spot level points and contour lines using 3-D analyst tool in ArcGIS.

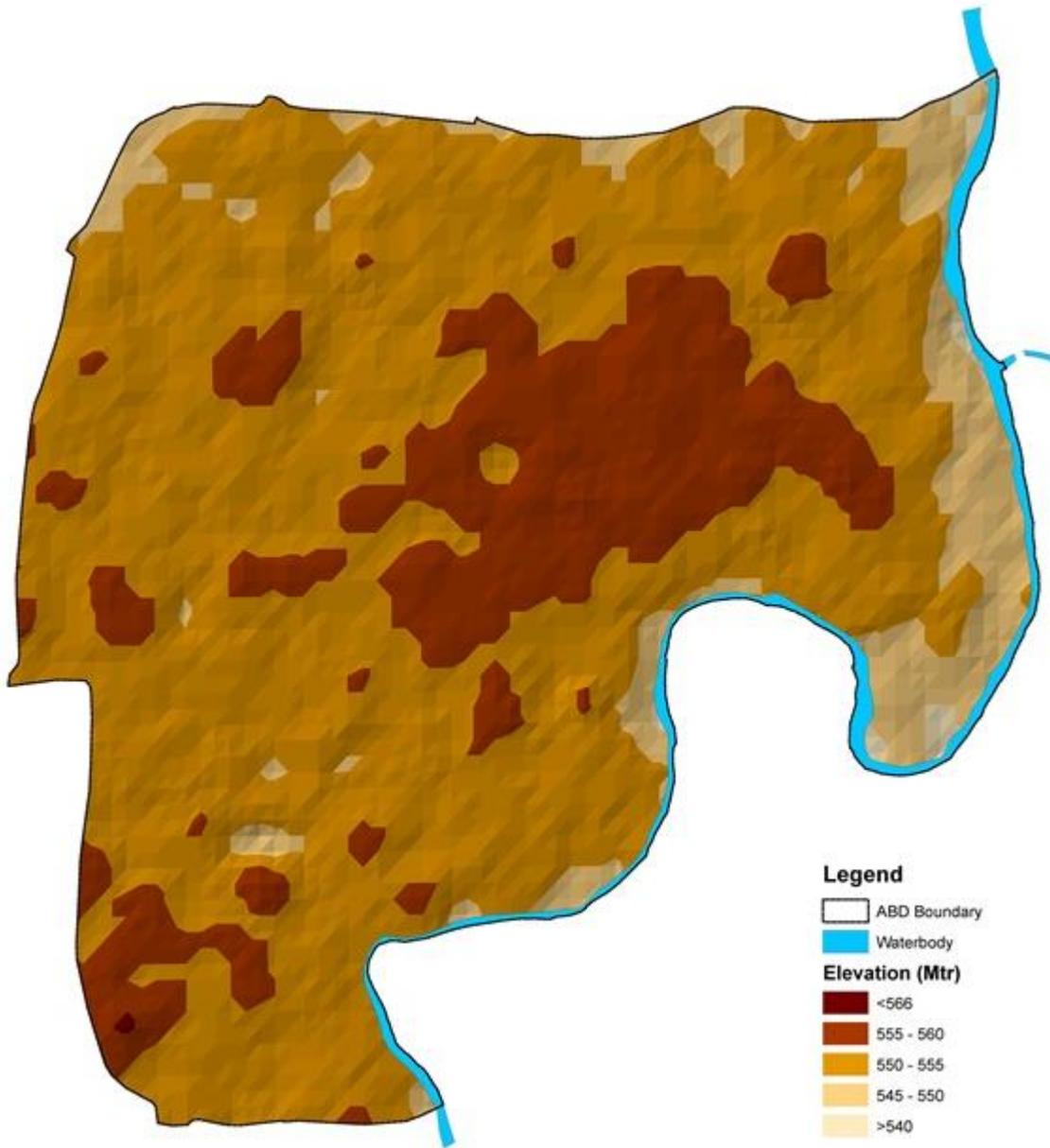


Figure 9: DEM of ABD Area

2.2.11 List of symbols in Base Map

The data to be displayed on a map must be classified and represented using graphic symbols that conform to well-defined and accepted conventions. The choice of symbolization is critical to the usefulness of any map

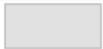
Symbol	Description	Symbol	Description
	Bus Stand		Institutional
	Manholes		ABD Boundary
	Electric Poles		Building Footprint
	Light Poles		Plot Boundary
	Mosque		Open Space
	Temple		Recreational
	Traffic Pole		Road
	Transformer		Waterbody
	Hospitals		

Figure 10: List of Symbols in Base Map

Color Code	Description	Color Code	Description
	ABD Boundary		Facility and Utility
	Residential		Open
	Mixed Use		Recreational
	Slum Area		Transportation
	Commercial		Waterbodies
	PSP		

Figure 11: List of Colour Codes in Land Use

S. NO.	NAME	SYMBOLS	S. NO.	NAME	SYMBOLS
01	ROAD		12	GREEN BELT	
02	DIVIDER		13	CHAMBER	
03	PAVER BLOCK		14	ELECTRIC POLE & BOX	
04	FENCING		15	TRANSFORMER	
05	WALL		16	HIGH MAST	
06	SHADE		17	LEMP	
07	RAILING		18	TEMPLE	
08	HOUSE & BUILDING		19	TELEPHONE POLE	
09	GATE		20	TELEPHONE BOX	
10	BUS STOP		21	TREE	
11	PLATFORM		22	TRAFFIC POLE	

Figure 12: List of Symbols in Survey Map

2.2.12 Cartographic Principles

Some important map elements are:

1. Title & subtitle
2. Legend
4. Scale
5. Direction
6. Coordinate system, including grid reference: UTM WGS 84
7. Graphic Primitives: margins / frame lines, logos,
8. Features

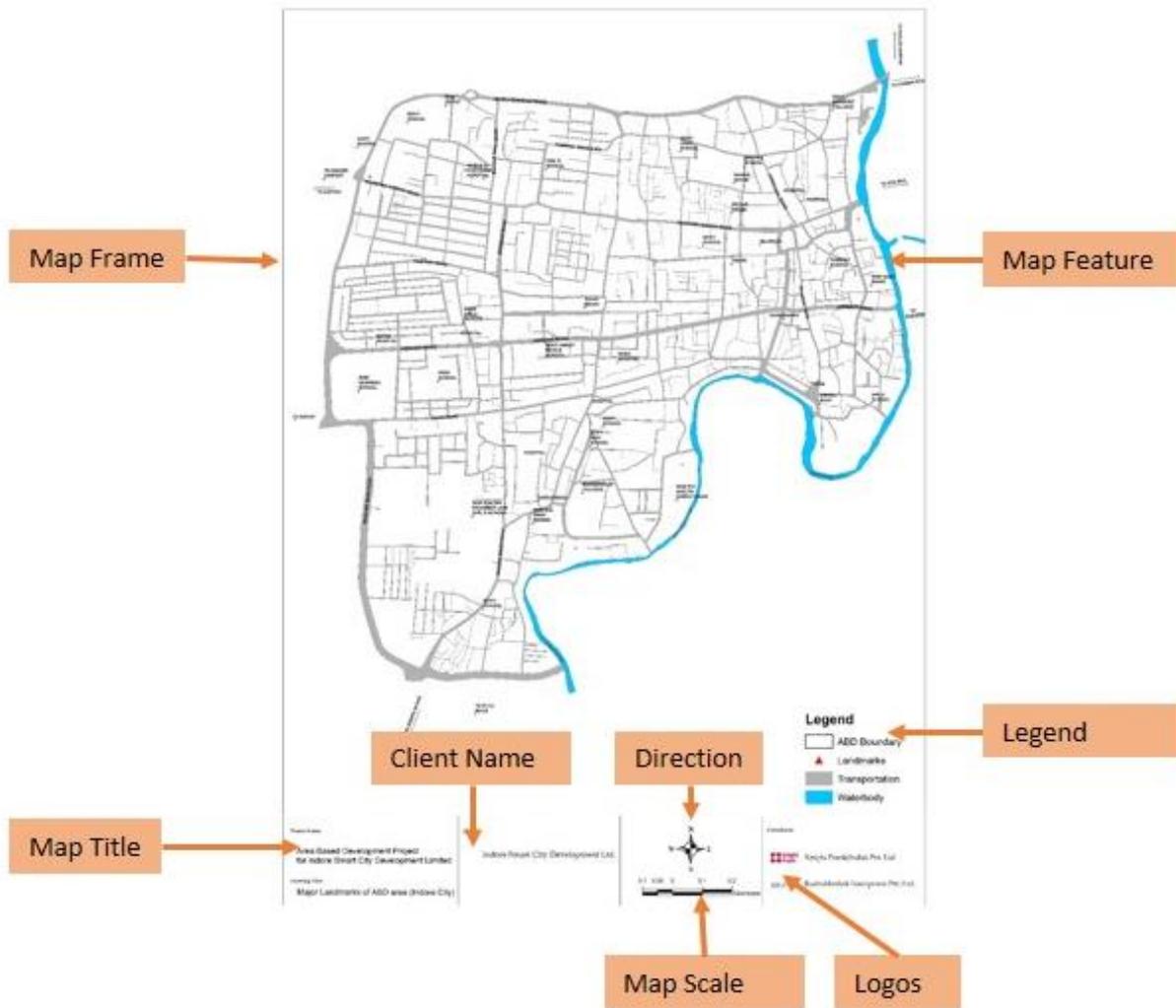


Figure 13: Important Map Elements

2.3 Engineering Surveys

Following Engineering surveys have been carried out for the ABD Indore for the preparation of base map

2.3.1 Geotechnical Investigation

Soil Samples and bore holes of project site have been conducted at proposed site. Geotechnical Investigation and soil test results would be helpful in pavement design of the roads, foundation depth of the buildings, underground water table depth etc. Further the Objective of the investigation is -

- To ascertain the Sub - Soil Strata at Site

- To Study the Physical and Engineering Properties of Soil Strata
- To Evaluate allowable safe bearing capacity of soils & Rock to design foundations Scope of Geotechnical Investigation comprises of:
 - Field Investigation
 - Soil Properties
 - Bearing Capacity

Field Investigation

Boring : IS : 1892

In accordance with the provisions of Indian Standard bore hole were executed. Auger was used for boring hole to a depth of about soft soil and refusal whichever is earlier. Soil or Refusal whichever is earlier. Boring was carried out to obtain information about the subsoil profile, ground nature and strength.

Standard Penetration Test :- IS : 2131

Standard Penetration test was conducted in accordance to IS 2131 using a standard split spoon sampler (51mm OD and 38mm ID and Length of 650 mm) Driven by 63.50 Kg Drop weight tripping automatically with a free fall of 750 mm The Number of Hammer blows required to drive 150 mm of the sample is counted. The sampler is further driven by 150 mm and the number of blows recorded. Likewise the sampler is once again further driven by 150 mm and the number of blows recorded. The number of blows recorded for the first 150 mm is disregarded.

The number of blows recorded for the last two 150 mm intervals are added to give the standard penetration resistance value 'N'

Laboratory test

Appropriate Laboratory Tests were conducted on the Soil & Rock Samples obtained from Bore Hole

- Optimum Moisture Content
- Maximum Dry Density
- Grain Size Analysis
- Atterberg's Limit (LL, PL & PI)
- Dry Density of Rock
- Crushing Strength of Rock
- C' Value of Soil
- Φ value of Soil
- Point Load Index Test

At following two Location bore hole have been conducted. Number of bore hole at each location was 2.

- Govt. School, Rajwada
- Veer Sawarkar Market

Report and drawings of bore hole are prepared for future reference.

In addition to bore hole soil samples have been collected and laboratory tests were conducted. Details of soil test results is presented below and laboratory test results are acquired for future reference.

Table 1: Soil Test Result for Roads Identified under Fast Track Projects

S. No.	Road Name on which soil sample taken	Soil Sample Chainage	Location of Soil Sample	Depth of Sample (m)	MDD (gm/cc)	OMC (%)	CBR (%)
1	Badaganpati To Krishnapura (M.G. Road)	800m	Near Canara Bank, RHS at Road Edge	1.00	1.685	16.21	1.80
2	Subhashmar g (Jhinsi depot to Rambagh bridge)	420m	Near BadwaliChawki, RHS at Road Edge	1.20	1.695	15.98	1.85

3	Gangwal bus stand to Chandrabhaga bridge	330m	Shri Digamber Jain Porwal Manglic bhawan, LHS at Road Edge	0.80	1.702	15.77	1.92
4	Rajwada To Subhash Marg via Imli Bazar	100m	Near Nakoda Namkeen, LHS Road edge	1.00	1.679	16.78	1.72
5	Gorakund to Badwali Chawki	145m	Near Handpump in front of Temple. LHS Road Edge	1.00	1.665	16.12	1.94
6	Krishnapura Bridge to Gautampura Via Nandlalpura	280m	Nandlalpura New Sabji Mandi, LHS Road Edge	1.00	1.657	17.05	1.79
7.	Gorakund Sq. To Jayrampur Bridge Via Biyabani Dargah	10m	Near Gorakund Square, LHS Road Edge	1.00	1.686	16.34	1.91

Note: Size of the pit for soil sample was 1m x 1m x 1m, and disturbed samples were taken from the soil test results it can be seen that soil of ABD area is black cotton soil up to 1 m depth.

2.3.2 Construction Material

- Source of Metal (Course Aggregate): Metal is easily available within 10KM radii from site.
- Source of Sand (Fine Aggregates): Sand is being transported from Nemawar which is 90KM from Indore, on banks of river Narmada.
- Source of Steel: Private vendors, all brands of steel are available in Indore.
- Source of Cement: Private Vendors, All brands of cements are available in Indore. Cements are readily available in Indore.

- Bricks: Local Bricks, Machine Molded, Flyash bricks are easily available in the city.
- Other Materials

Survey and field variation were carried out for the above materials for the sources, suppliers/vendors and it has been found that all the materials are readily available.

2.3.3 Availability of Contractors

There is a shortage of specialized skilled contractors for various works in construction industry in Indore. Some of the skilled companies required to carry out the project for Smart city Indore are mentioned below:

- Underground Tunneling
- Horizontal Boring for Utilities
- Mechanical Parking

CHAPTER 3: CITY PROFILE: INDORE

3.1 About Indore

Indore, the premier city of Madhya Pradesh and the district headquarter. It is situated on the western part of the Malwa plateau (historically known as Deccan plateau), located at 22' 43' N latitude, 76' 42' E longitude on the banks of two small rivers, the Kanh and the Saraswati. Indore is located at an average altitude of 550 mtrs. above MSL. The city is currently the most populated city of Madhya Pradesh. Indore has been a center of affluence due to flourishing trade and commerce right from the beginning. It is the biggest commercial center and is termed as the business capital of Madhya Pradesh. Indore has a strong historical background with heritage buildings such as Lalbagh Palace, Hawa Bungla, Sukhniwas Kothi, Gandhi Hall, Krishnapura, Bolia Chhatris etc.

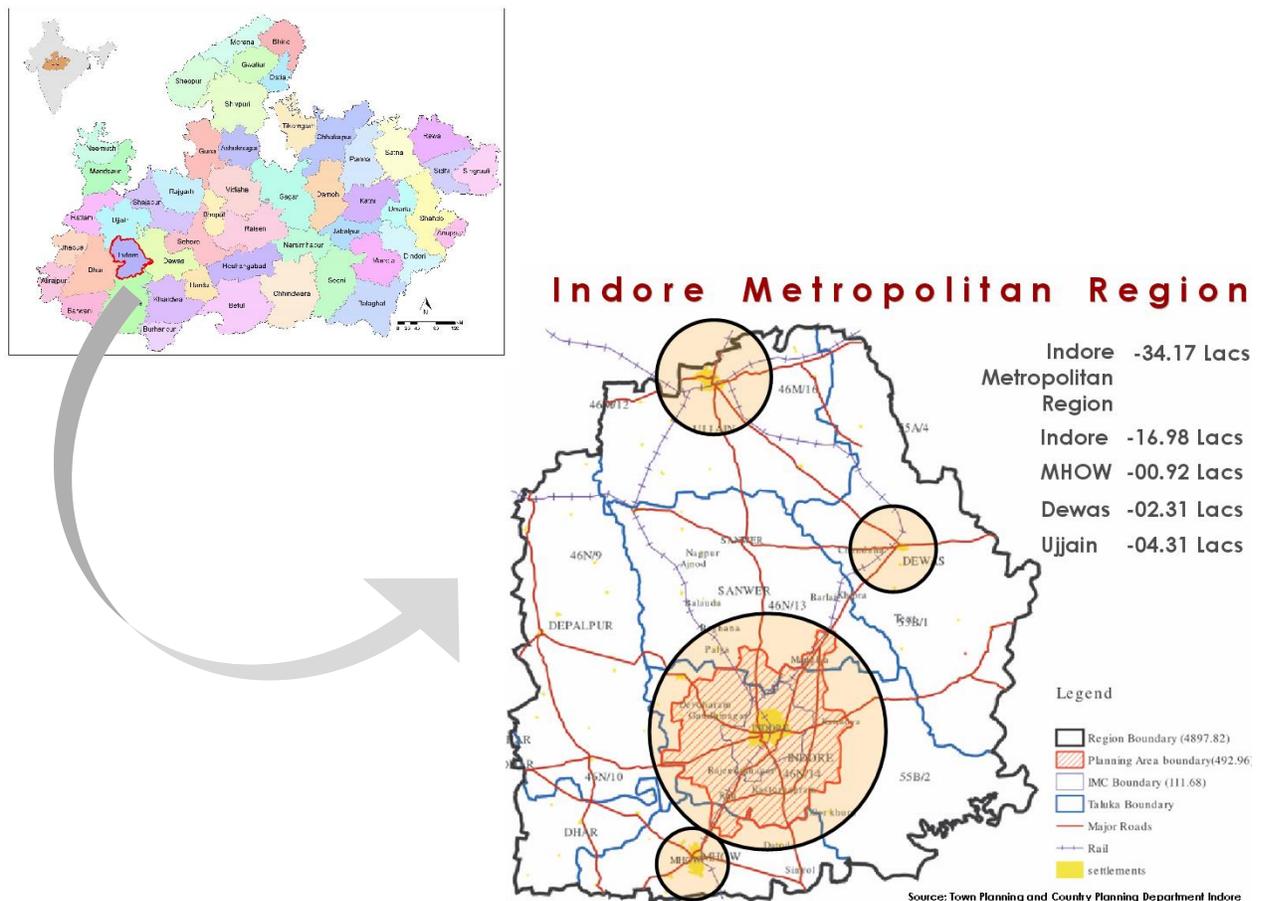


Figure 14: Indore Metropolitan Region: Source IDP, 1991

3.2 Linkages & Connectivity

Indore city is linked by three modes of transportation viz. Road, Rail and Air;

- **ROAD:** Regional road pattern fans out in all directions. State Highways and other roads connect the city with the State Capital Bhopal, all District Head Quarters of the Division and important towns within the District. The major national Highways passing through the city are;
 - a) National Highway No. 3 (NH3 – Agra Bombay) connecting North to South of the city.
 - b) National Highway No. 59 (Ahmedabad – Godhra - Indore) connecting East to West of the city.
 - c) National Highway No. 59A (Indore – Betul – Nagpur connecting NH 69)

The Mumbai- Indore section of the National Highway No. 3 and the Ahmedabad – Indore section of the National Highway No. 59 are undergoing multi laning under the NHDP program.

- **RAIL:** The city is, served by a broad gauge and meter gauge railway line. Meter gauge train stopped operating from February 2015. Indore-Mhow section is now being upgraded to broad gauge. The Railway line passes through the heart of the city, which forms a physical barrier for, inter communications within the city. The Indore Junction is an A-1 grade railway station with a revenue of more than Rs. 50 crore.
- **AIR:** The city is also served by a regular air service, which connects it to Mumbai, Bhopal and New Delhi. With a range of direct flights to cities such as Ahmedabad, Bengaluru, Chennai, Goa, Hyderabad, Kolkata, Lucknow, Nagpur, Pune, Raipur, Ranchi, Srinagar, Indore's DABH airport will be soon having International flights.

3.3 City Growth & Evolution

The city was first named Indreshwar which was named after the Indreshwar Temple in the city. Indreshwara temple- the oldest shrine at Indore, believed to have been named on its original patron- the Rashtrakuta king Indra III of the 10th Century. The Shiva temple was restored by Subedar Malhar Rao in 1741, in whose time Indore was an existing trading post and a camping site for guerrilla activities. Malhar Rao tried to rubberstamp the city as Malharnagari but the old name was not to call quits. It was this temple that gave Indore her name, and the Juni Indur came around.

JUNI INDORE

Indore is old settlement which started at the end of 15th century. Its original nucleus was a riverside village, which occupied the bank of river Sarasvati. This area is now known as Juni Indore. The little village grew as an important halting place for pilgrims traveling between great religious cities, Ujjain on the bank of the Holy River Kshipra; Omkerashwar on the banks of River Narmada. Later, in addition to the halting place it also became a camping place for forces of Moghul's and Marathas who frequently moved to South and North for expanding their kingdoms. The Zamindars of village Kampel (about 10 km. S.E) visualized the opportunity of flourishing trade in this settlement and settled on the banks of the River Kanha. To withstand the foreign invasions, Zamindars built a castle, giving this village a character of a walled town, although the town hardly suffered the destruction of feudal wars. There was increase in trade and commerce with zamindars investing in the city and thus the city expanded as a trade centre.

HOLKAR INDORE

Being at a Junction of Pilgrimage route (Omkareshwar to Mahakaleshwar) and Military Route (Agra to Deccan) it developed as commercial and military town. It got an Administrative Importance with declaration of Indore Province by Maratha's and served as transit camp for Marathas in their route to North. Indore

become an important town on 29th July 1732, when Bajirao Peshwa-I granted Holkar State (Jagir) by merging 28 and half parganas and then providing this Jagir to the 'MALHARRAO HOLKAR', the founder ruler of Holkar Dynasty, ruled the state from 1728 to 1766. During this period development was primarily for military and commercial establishment. Later the boundaries of the state were amended and Maheshwar was also included in the Jagir. In 1818 the capital was shifted from Maheshwar to Indore, through the proposal was initiated by Rani Ahilya Bai, daughter in-law of Malhar Rao Holkar. Establishment of Holkars capital at Indore provided new forces for development of the city. The roads, Cloth Market, all the defense establishments were made. The trade centre grew rapidly under the Holkar dynasty (1733-1818). The remains of their two-century-old palace still stand in the main square (called Rajwada). The city became the capital of the Indore princely state in 1818 after the British forces under Sir John Malcolm defeated the Holkars led by Rani Krishnabai Holkar at Mahidpur. She signed the treaty of Mandsaur by which the control of Indore went in the hand of the East India Company.

BRITISH INDORE

Holkars got defeated by against Britishers in 1817 they signed Mandsaur Treaty and Indore was again declared capital. This started transition in the development of Indore from mughal and maratha style to a composite Anglo-Indian style. Educational Institutes laid the base of growth of institutional Areas in the south-east part of the City. During the period of Maharaja Tukoji Rao II efforts were made for the planned development and industrial development of Indore (1852-86). It was during his time that Krishnapura Bridge, Krishna Bai Chattri and roads were constructed. With the introduction of Railways in 1875 the business in Indore flourished. In 1903, Maharaja Shivaji Rao Holkar left the throne in favour of his son Maharaj Tukoji Rao III during whose regime also the development of city continued. Manikbag palace, Maharani Saraya, Gandhi hall, Old High Court Building, Yashwant Niwas, Tukoji Rao Hospital was constructed during his tenure (now it is known as MTH compound). In 1906 Electric supply was started in the

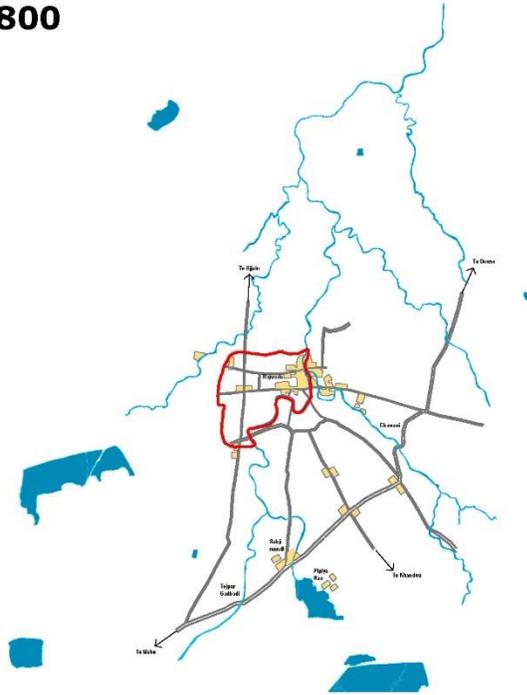
city. Fire brigade was established in 1909. In 1918 noted Architect and Town Planner Patrick Geddes was Invited by Darbar of Indore to promote proper development of Indore. Patrick Geddes Prepared a Master Plan for City of Indore. After this Master Plan For transport network Mr. Stemper was invited and he prepared a transport network plan for City. Between 1948 and 1956, Indore served as the summer capital of the former Madhya Bharat state. Currently, it is the commercial capital of M.P

MODERN INDORE

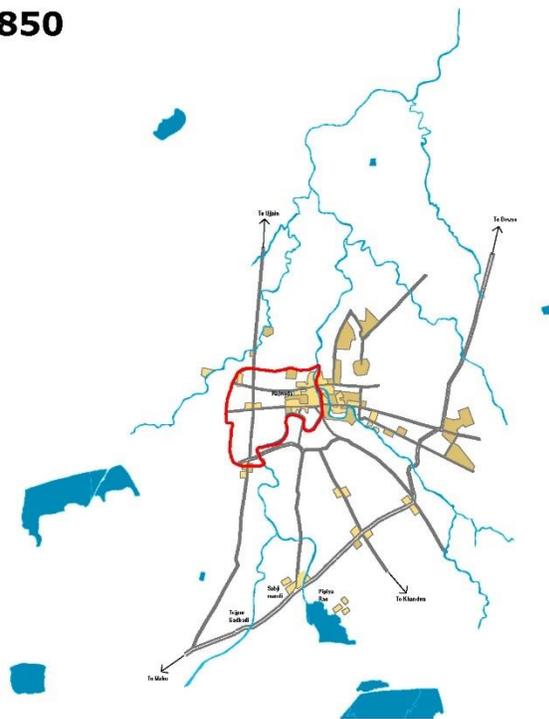
With the development of railway link joining the Pilgrimage route the trade and commerce grew up making the city commercial capital of central province in pre-independence period. The new Broad gauge line connecting Indore to the Kanhdwa & western part of India also helped in the growth. After independence. The first ever-planning intervention in the post-independence period was in the form of Indore Development Plan (1974- 1991), which was published and adopted under 18 & 19 of Town & Country Planning Organization Act - 1973. The plan envisaged planning area was 21,410 ha, out of which 12,145 ha were provided under different uses for 12.5 lakhs population. Earlier Industries started with Textile Mills, later in the first planned Sanver road Industrial area was proposed which successfully implemented. Today Indore is growing as Commercial, Industrial, Educational and recently health facility Centre of Madhya Pradesh State. Indore is the only city in India to have an IIM and IIT both. The new MNC's like TCS, Infosys, Infobeans, etc. in the IT sector is also creating new opportunities in the new modern & smart Indore

City Growth & Evolution Map

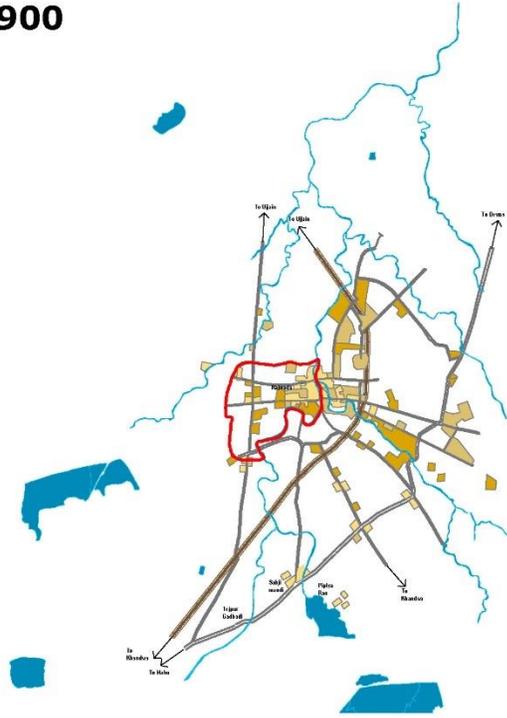
1800



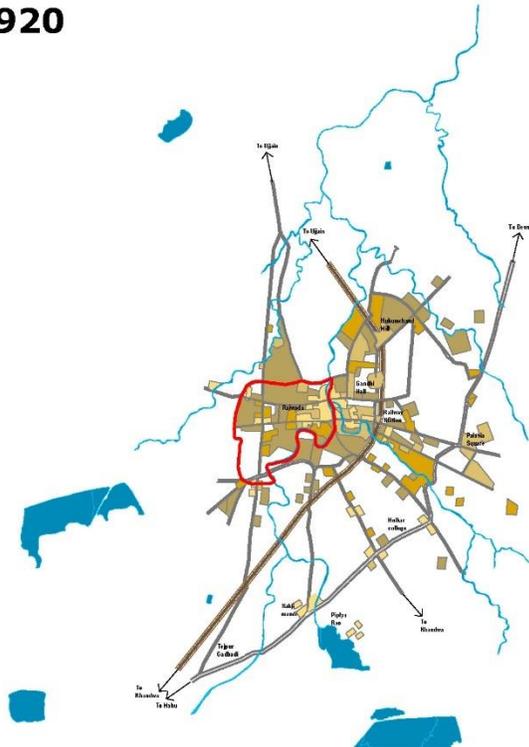
1850



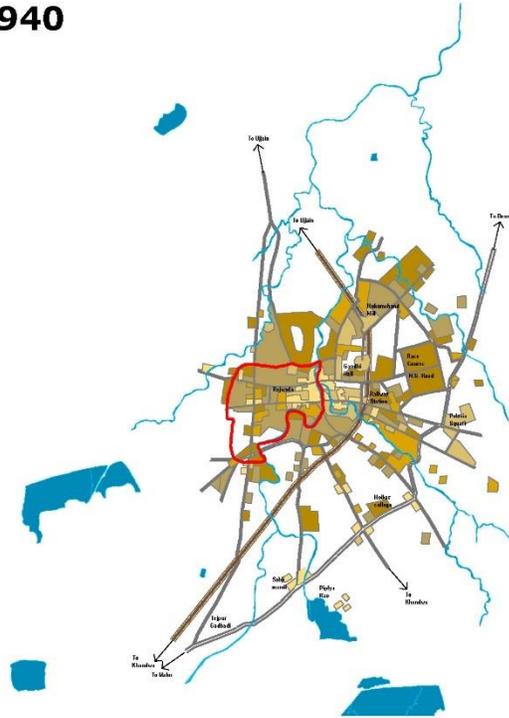
1900



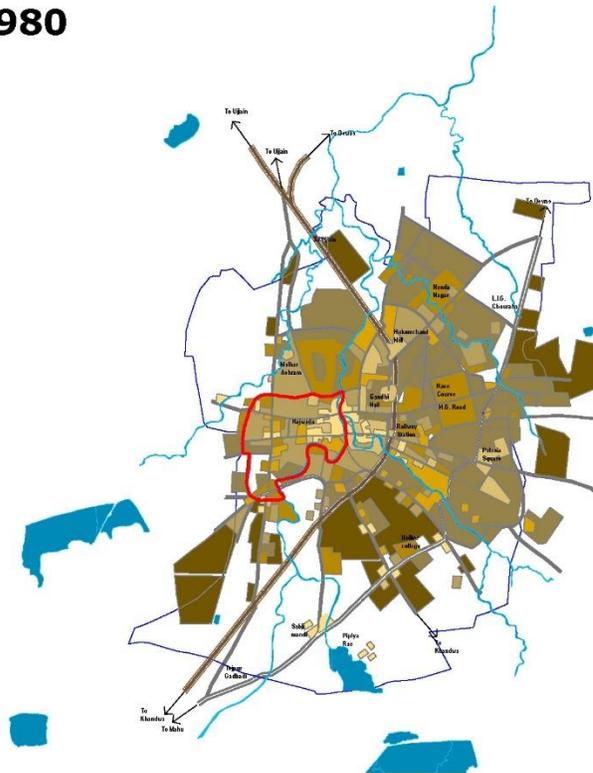
1920

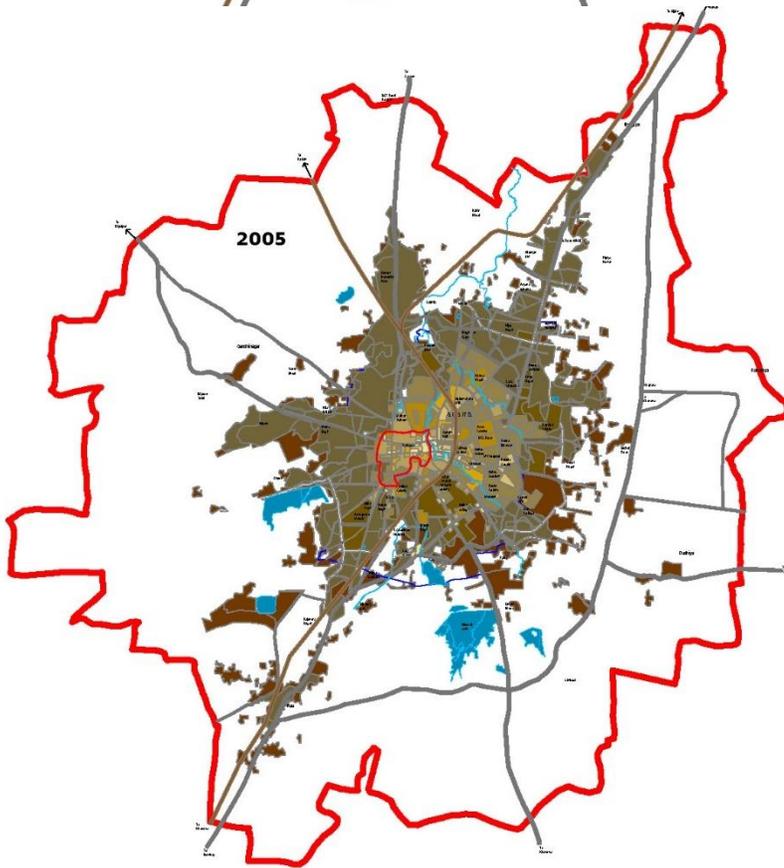
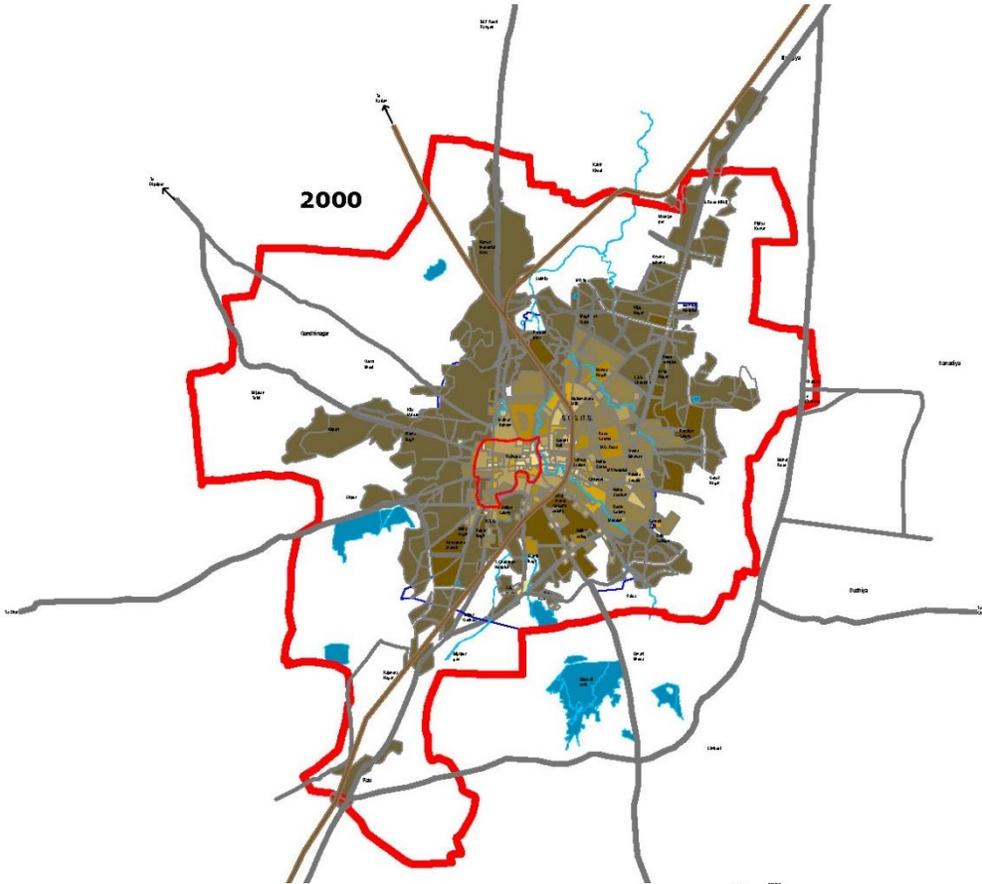


1940



1980





3.3 Physical Characteristics

3.3.1 Physical Features

The entire city of Indore, having a Municipal area of 276 Sq. Km. lies in Kanh & Sarswati River basin. The river and its tributaries traverse through the densely-populated area of the city. The city occupies a relatively flat plateau having a gentle slope towards north. The hinterland of the city is scattered with some hillocks. There are no physical constraints except Pipaliyapala Tank on the southeastern side and Sirpur Tank in the southwest, which may limit or condition the growth of the city. The highest and the lowest contour levels in the city are 590 m and 540 m, respectively.

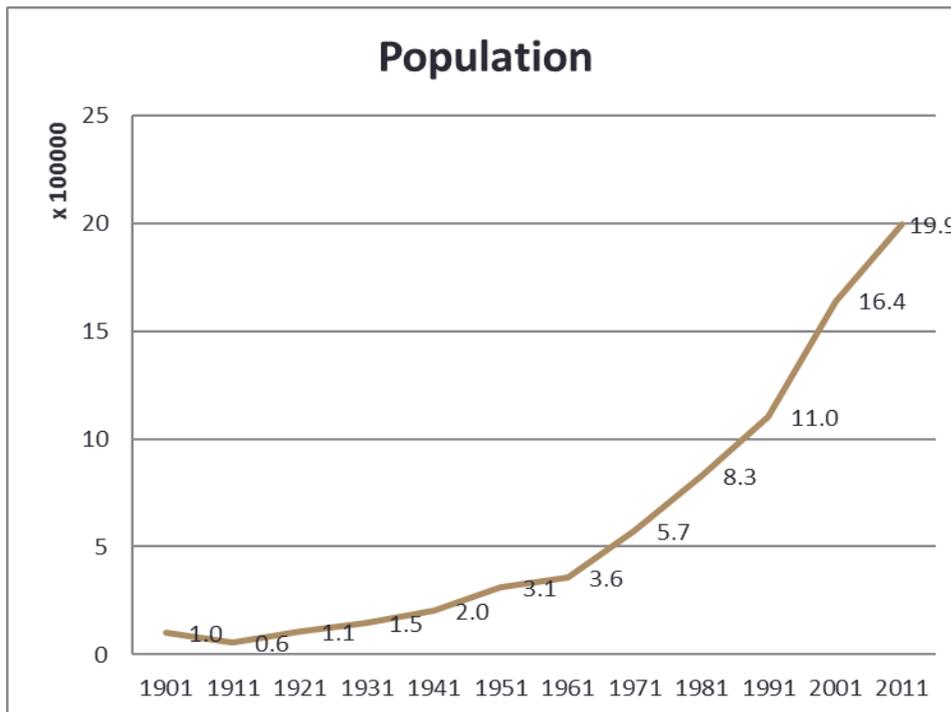
The city has black cotton soil varying in depth from place to place. The cross section at various places shows an order of soft soil till 5 ft., hard soil till 15 ft., red-soils till 30 ft, after this the rocky terrain extends oil 100 ft and below.

3.4 Demography

As per 2011 Census, the population of Indore Municipal Area is 19.92 lakhs and 22.91 lakhs for Indore Urban Area. The average annual growth rate of population in Indore Municipal Area is 1.97%. During the period 1901 to 1911 city faced disastrous health condition due to plague and hence the growth rate is seen negative. While for the Study Area, the growth rate has been 3.4% during the period 2001 to 2011. In 2001, Indore City (IMA) had a spread of an area of 130.17 sq. km, with the population of 16.39 lakh resulting in a population density of 12598 persons per sq. km. whereas, with the population of 19.92 lakh in 2011 and areas remaining same, the density has risen to 15315.4 persons per sq km. At the Planning Area level, as the City has spread and the area has increased from 130 sq km to 505 sq km during 2001-2011, the density has dropped from 15315 persons per sq km to 4534 persons per sq km during the period. Table and Figure give the population growth trends of Indore Municipal Area.

Table 2: Decadal Population Growth of Indore

Year	Population	Urban Area (Sq km)	Decadal Variation	Population density (per/sqkm)
1901	99880			
1911	57235		-42.70	
1921	107948		88.60	
1931	147100		36.27	
1941	203695		38.47	
1951	310859		52.61	
1961	359000	55.8	15.49	6433.7
1971	572622		59.50	
1981	829000		44.77	
1991	1104000	130.1	33.17	8485.8
2001	1639000	130.1	48.46	12598.0
2011	1992535	130.1	21.57	15315.4

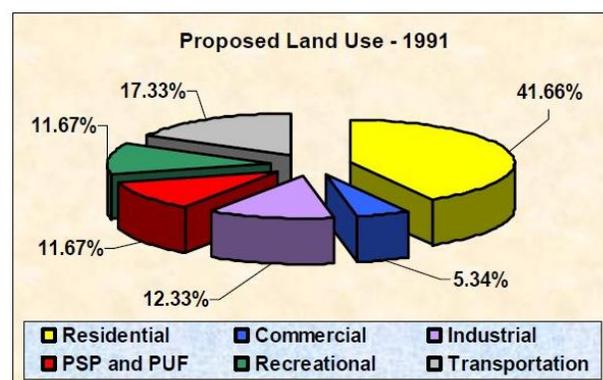


3.5 Planning Interventions

3.5.1 Indore Development Plan 1991

Indore Development Plan 1991, was prepared in 1974 under the newly enforced Legislation; the Madhya Pradesh Nagar Tathaa Gram Nivesh Adhiniyam 1973 and had come into operation in 1975. As per IDP-1991, existing Land Use Survey carried out in the Year 1974 suggested the city was dense with 218 pph Gross Density with a total developed area of 2574 Ha. IDP-1991 was planned for the Planning Area of 21410 ha, which included then IMC Area and 37 surrounding Villages. The IDP-1991 proposals were framed based on a Multi Nuclei City. Out of the Total Planning Area of 1991, the development Area for different land uses was 12145 ha for a population of 12.5 lakh. The proposal was for a sparse development with gross density of 103pph and Gross Residential Density of 250pph. The plan also proposed decentralization of the commercial areas by developing new city level commercial centers which were Rajwada (36 hect), New Dewas city centre (24 hect) & Manik bagh city centre for Wholesale & Specialized markets. Promoted growth of industries through development of Industrial land, Provision of proper circulation pattern, provision of water supply & sewerage system. The proposal also envisaged huge Public Semi-public as well as Recreational areas.

Proposed Land use 1991			
Sr.no	Use	Area (in Hectare)	% Share
1	Residential	5058.00	44.66%
2	Commercial	648.00	5.34%
3	Industrial	1498.00	12.33%
4	PSP and PUF	1417.00	11.67%
5	Recreational	1417.00	11.67%
6	Transportation	2105.00	17.33%
	Total	12145	100.00%

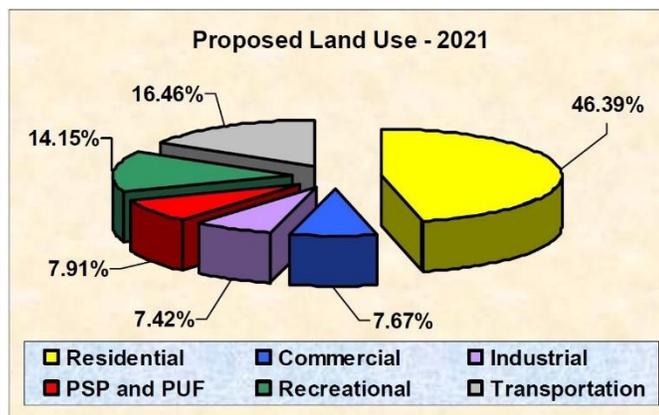


3.5.2 Indore Development Plan 2021

Indore Development Plan 2021 envisages developed area under various Land Uses as 34047 Ha out of the total notified planning area of 50525 ha for a projected population of 35.67 Lakhs in 2021. The Land Use allocation under various use is been presented below.

SR No	Use	Area in Ha	% Share
1	Residential	15795.00	46.39%
2	Commercial	2610.00	7.67%
3	Industrial	2527.00	7.42%
4	PSP and PUF	2693.00	7.91%
5	Recreational	4817.00	14.15%
6	Transportation	5605.00	16.46%
	Total	34047.00	100.00%

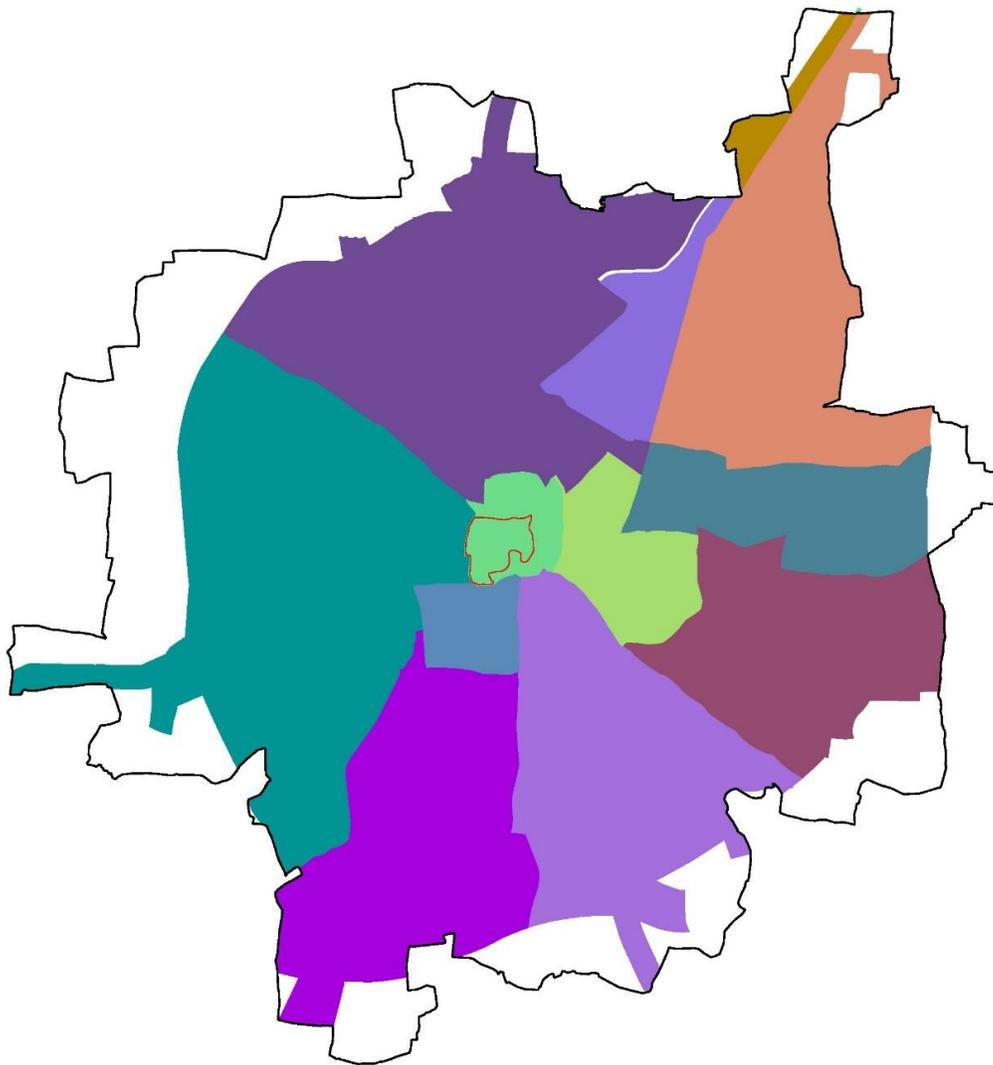
Source: Indore Development Plan 2021



3.5.3 Planning Units

In the IDP-1991 the entire proposed Developed area in the Planning Area was divided in to 11 self-contained Planning Units. In the IDP- 2021 the same planning units have been maintained and the boundaries have been extended up to the Proposed Developed area under the IDP-2021. The PU-3 has been divided in to PU-3A and PU- 3B due to the area under the Planning Unit not been Contiguous. Thus, the Proposed Developed Area (IDP-2021) under the Planning Area has been divided in to 12 Planning Units. The reconstituted planning units are shown in figure below. Each unit is supposed to function as an entity in respect of shopping, Educational and Health amenities, Recreational areas, and to a large extent work centres within the unit. The planning units are linked to the city centers, work centers of the higher order, city level amenities, and Transport Nodes etc. Each planning unit is further divided into sectors and sub-sectors which are supposed to contain sector level amenities. IDP-2021 doesn't provide Planning unit wise Population Distribution, Density, Land Allocation and Land Use

Proposals, thus it doesn't gives any specific function and Role to all the Planning Units in the Urban Structure.



LEGEND

	PLANNING UNIT 1		PLANNING UNIT 6		MASTERPLAN BOUNDARY
	PLANNING UNIT 2		PLANNING UNIT 7		ABD BOUNDARY
	PLANNING UNIT 3A		PLANNING UNIT 8		
	PLANNING UNIT 3B		PLANNING UNIT 9		
	PLANNING UNIT 4		PLANNING UNIT 10		
	PLANNING UNIT 5		PLANNING UNIT 11		

Figure 15: Planning Units of Indore (IDP-2021)

CHAPTER 4: ABD AREA: STUDY AND ANALYSIS

4.1 Introduction to ABD Area

4.1.1 Location

The ABD project area is the core central part of the Indore City. It is spread across a contiguous land parcel. ABD area exist between $75^{\circ}50'25''$ to $75^{\circ}51'34''$ longitude and $22^{\circ}42'18''$ to $22^{\circ}42'25''$ latitude. The ABD area is bounded by roads on the northern, western and southern side and by River Saraswati and River Kanh on the eastern side.

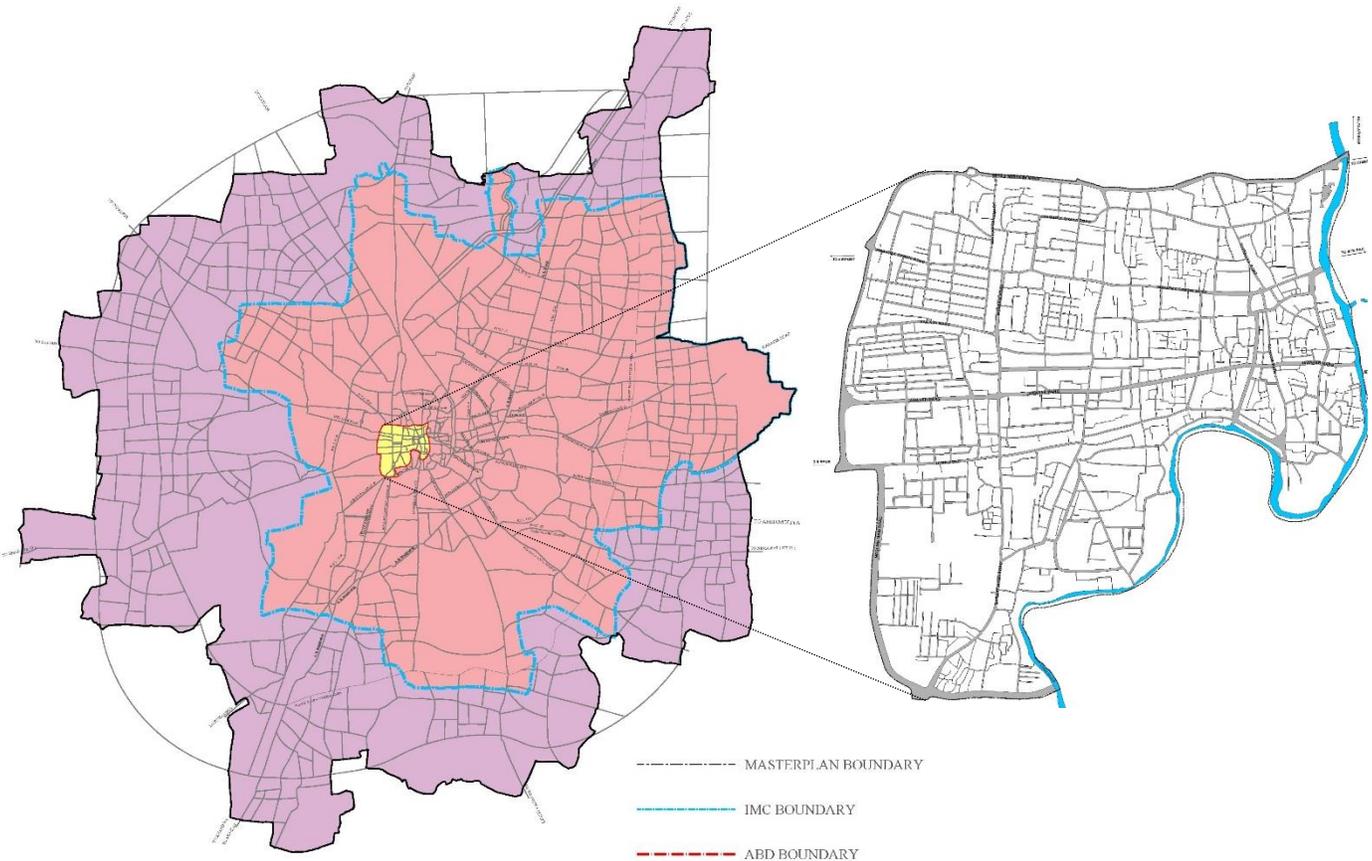


Figure 16: Location of ABD in Planning Area

4.1.2 Boundaries and Area

The Total Geographical area under ABD is 742 Acres. River Kanh and River Saraswati form the eastern boundary of the ABD area. The boundary follows Lal Bagh road to Mhow Circle on the southern part, then towards north along MOG lines road till the T-junction with Dhar road, from where its aligns with Dhar Road till Gangwal Circle, where after it moves northwards along Netaji Subhash Marg passing Bada Ganpati Chowk and turn eastwards towards Imli Bazar Chowraha and meets River Kanh at the Nagar Nigam Square.

The area covers the administrative zone boundary of Zone no. 1 (Kila Maidan), Zone No. 2 (Raj Mohalla), Zone No. 3 (Nagar Nigam), Zone No. 11 (Nehru Stadium), and Zone No. 12 (Harsiddhi Zone). The 11 out of 85 wards are fully or partially part of the ABD area Boundary; they are namely Ward No. 6, 7, 8, 57, 58, 59, 60, 67, 68, 69, 70. Map shows coverage of different Zones & wards within the ABD area.

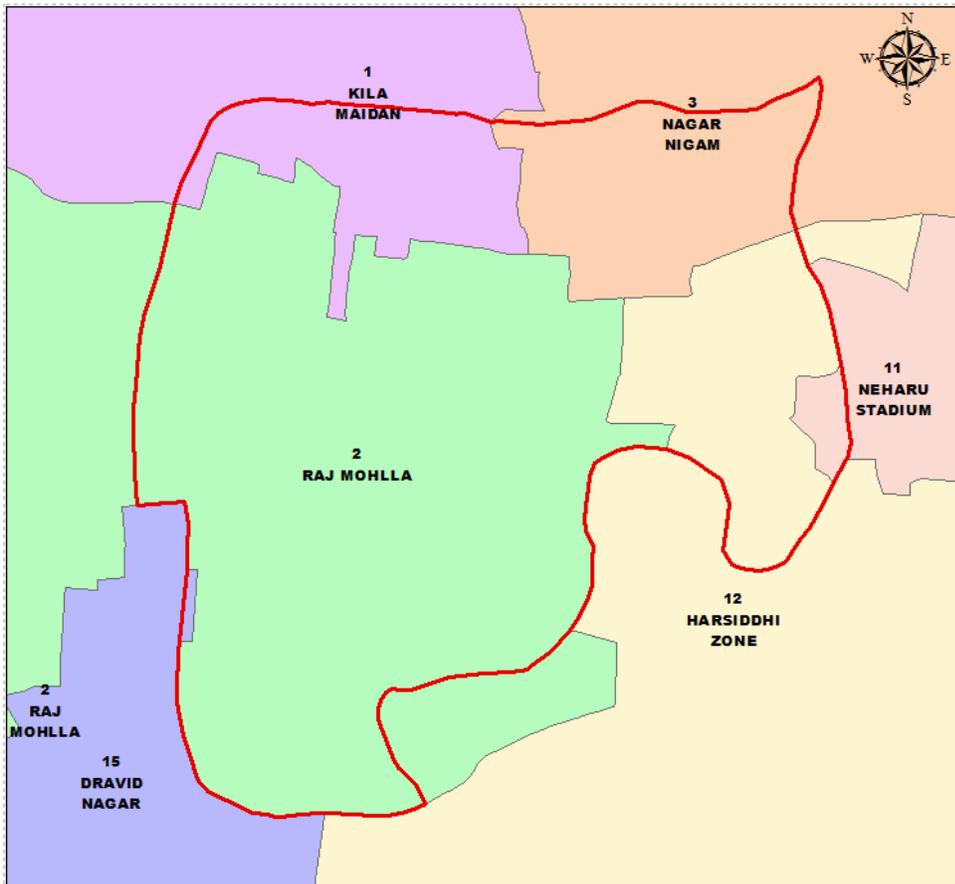


Figure 17: Coverage of Administrative Zones in ABD Area

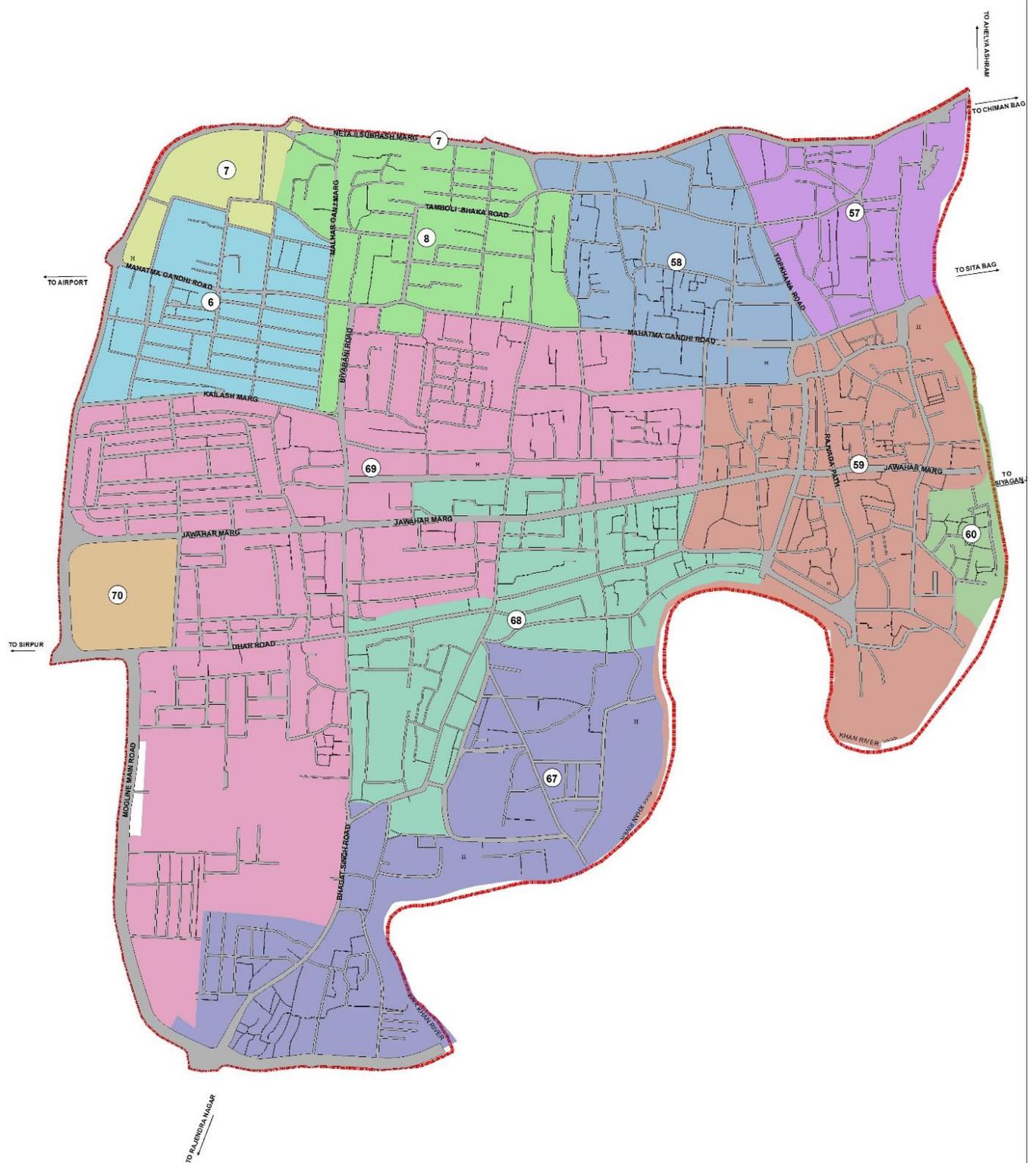


Figure 18: Wards in ABD Area

4.1.3 Demography

The population of ABD area is 1.2 Lakhs (in year 2016) which is almost 5% of the total population of the Indore city. Out of 85 wards in the whole city, 11 wards are fully or partially part of the ABD area. The part of ward 70 in ABD comprise of only Shri Vaishnav School and hence corresponding population is not considered in density calculation. Distribution of population and resulting population density are shown in table and Map below. Ward 8 and 68 show the maximum gross density in the ABD area. Ward 8 possesses maximum net density followed by ward 60, 67, 68, 7 and 59.

Table 3 Ward wise Gross & Net population Density

S N	Ward No.	Ward Name	Ward Area (ha)	Area in ABD (ha)	% Area in ABD	Ward Pop.(2012)	Pop. In ABD (2012)	Gross Density (P/Ha)	Net Density (P/Ha)	Net Area (Res.+Mix .)
1	6	Malhar Ganj	82.92	16.93	20%	28321	5781	342	614	9.42
2	7	Janta Colony	132.97	5.98	4%	26477	1191	199	1075	1.11
3	8	Junarisala	30.44	21.04	69%	28855	19940	948	1640	12.16
4	57	Devi Ahilya Bai	240.28	15.32	6%	23221	1481	97	189	7.85
5	58	Imli Bazar	110.39	20.30	18%	29524	5428	267	647	8.39
6	59	Harsiddhi	62.31	37.15	60%	22444	13383	360	1033	12.96
7	60	Ranipura	54.68	4.33	8%	24025	1901	439	1161	1.64
8	67	Maharaja Holker	50.23	37.71	75%	22447	16853	447	1056	15.97
9	68	Bombai Bazar	26.67	26.67	100%	22058	22058	827	1036	21.29
10	69	Jawahar Marg	89.64	84.50	94%	25596	24128	286	738	32.69
11	70			5.90			0		NA	0.00
Total				275.82			112143	407	908	123.46

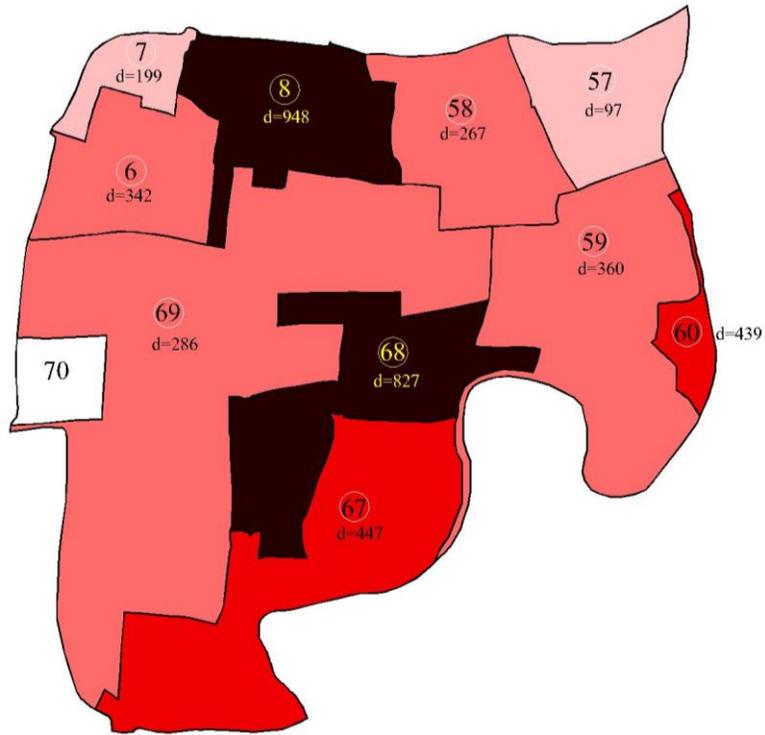


Figure 19: Gross Population Density Distribution in ABD Area

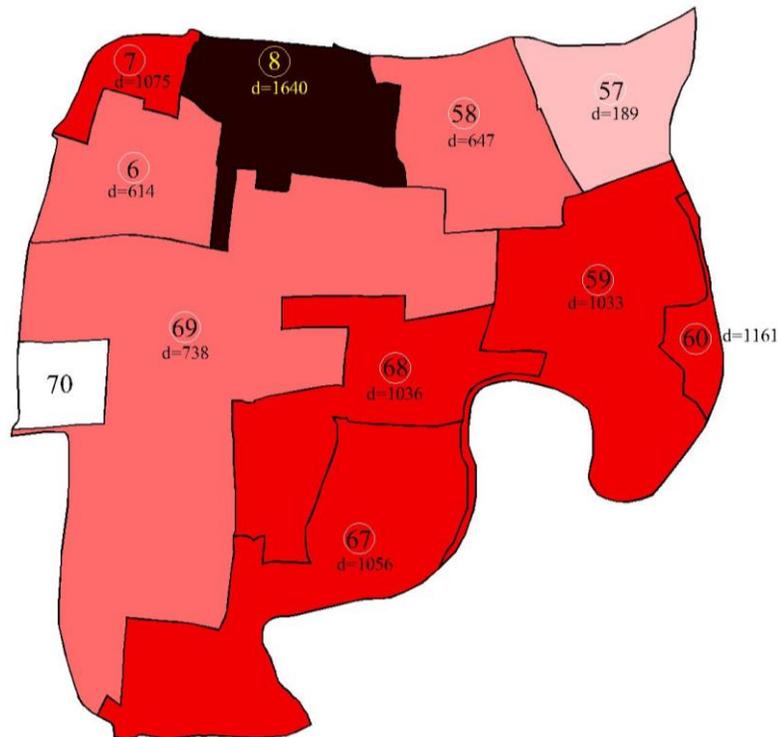
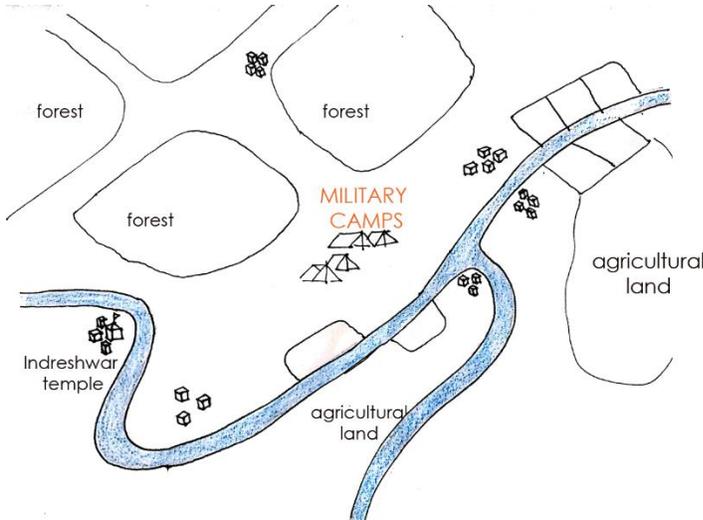


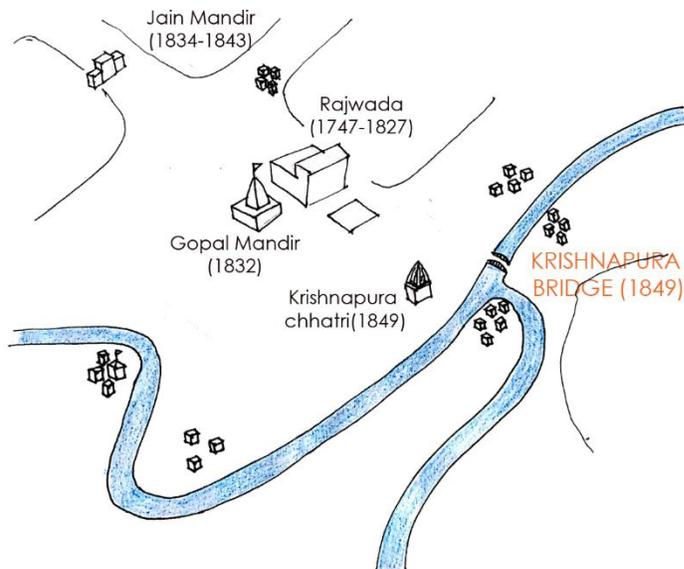
Figure 20: Net population density distribution in ABD Area

4.1.4 Significance of ABD Area

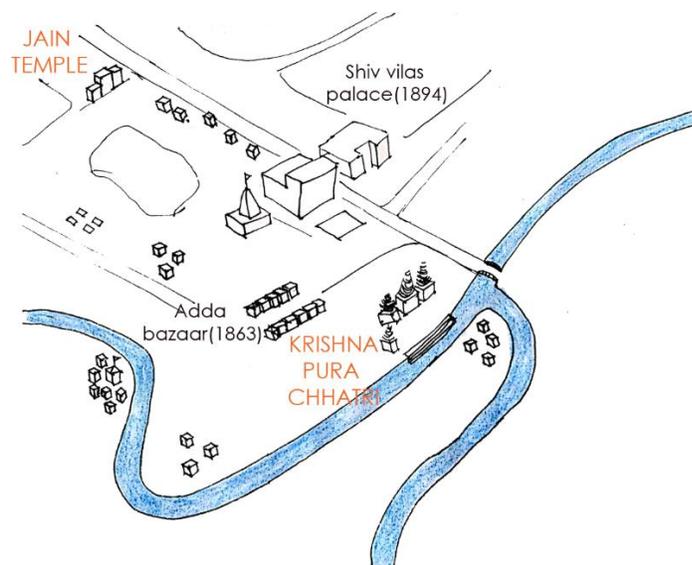
Indore initially was a small riverside village whose origin was marked by the presence of Indreshwar Temple on the bank of River Saraswati.



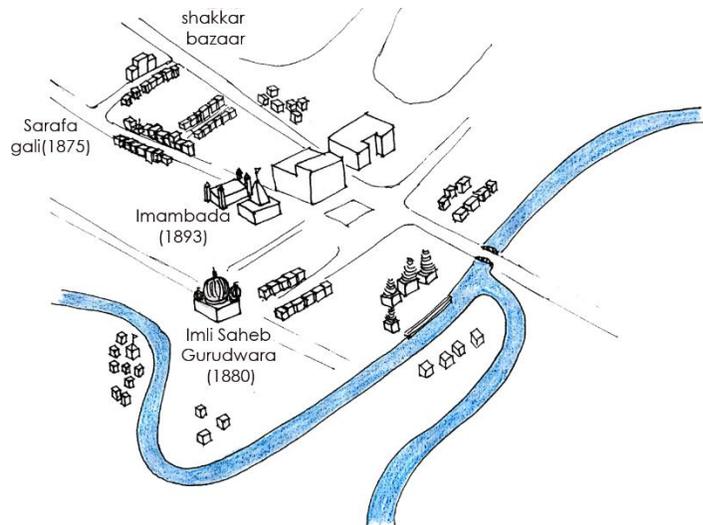
It was after recognising the worth of the land, its richness in terms of natural resources and fertility the Marathas invaded Indore and declared it as their capital and handed over it to the Holkars. The Holkar dynasty then take initiative for developing the precinct and thus constructed many important built structures like Gopal Mandir (Ann kshetra) in 1832, Jain Mandir (1834-1843), Krishnapura Chhatri(1849) near the Krishnapura bridge.



History of urbanisation of Indore begins with the construction of RAJBADA, the centre of administration from where the Malva region was ruled by Holkars in Indore there were favourable condition for commercial activity it became a commercial city. Many contemporary styles were like from Jaipur, Ajmer and Pune and also from Mughal styles to give building a royal effect. Later the area witnessed small settlements coming up in place of agricultural land as people shifted their occupation to trading from agriculture.



This marks the establishment of Adda Bazaar (1853) which is a ladies market in close vicinity of Rajwada. Shiv Vilas Palace (1894) was also constructed just next to Rajwada further strengthening the importance of the precinct. After the establishment of Adda Bazaar, emergence of other bazaars like Sarafa gali ,Shakkar Bazaar, Imli Bazaar took place to enjoy benefits of security being in the close proximity to the Royal palace. Construction of Imli Saheb Gurudwara (1880) and Imambada (1893) just next to the royal temple Gopal Mandir by Holkar rulers was to give equal status to Muslim and Sikh community imparting Rajwada Precinct a unique character of possessing religious structures of multiple communities.

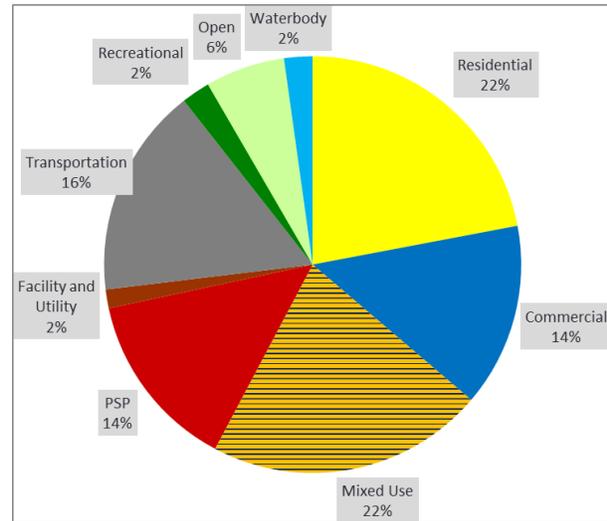


It was year 1918 when then Holkar ruler realized that the precinct is growing haphazardly around the palace and invited Sir Patrick Geddes who prepared multiple development plans and development schemes for the city. It was after his initiation that the precinct got well linked by means of Price Yeshwant road, Mahatma Gandhi road and Jawahar Marg with the precinct and also connected the old city with the new Indore.

4.2 Existing Landuse

Landuse reflects the use of land for the various activities carried out in the core area viz. Residences, commerce, schools, roads etc. In order to comprehend the quantum of land utilization for various uses, a systematic analysis of land use is very essential. The land uses have therefore been classified into following categories:

1. Residential
2. Commercial
3. Mixed use
4. Public-Semipublic
5. Public facility & utility
6. Transportation
7. Recreational
8. Open
9. Water body



The Entire Land under ABD Area is developed. The Existing Land use of ABD area reflects the Central Business District Function with 14% of the Land in Commercial Use. The share of Residential Use is 22%, Mixed Use (Commercial use on ground floor over Residential Use) is 22%, PSP 14%, Public facility & utility only 1%, Transportation 16%, ABD area lacks in recreational spaces only 2% of land, water body 2% and open 6%.

Land Use	Area (in Ha)	Percentage
Residential	148.01	22%
Commercial	95.62	14%
Mixed Use	144.55	22%
PSP	93.40	14%
Facility and Utility	9.88	1%
Transportation	109.71	16%
Recreational	14.82	2%
Open	41.51	6%
Water body	14.82	2%
Total	672.32	100%

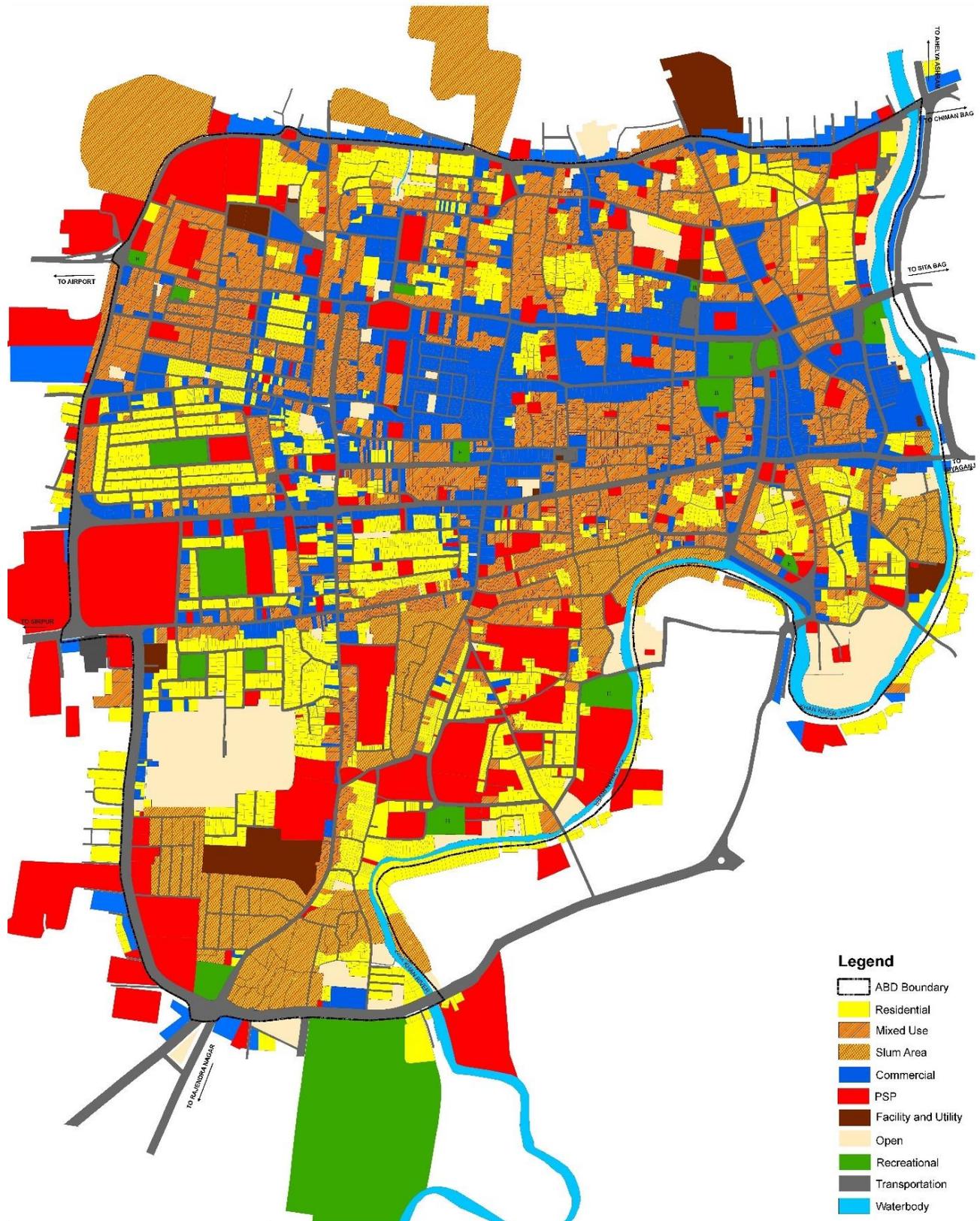


Figure 21: Existing Land Use of ABD Area

4.2.1 Residential and Mixed Use

ABD area generally has three broad types of residential areas – plotted residential, slum areas and residences in mix-use buildings. The ABD area has a large percentage of purely residential area (22 %) which covers around 60 Ha. Out of this, 13.3 Ha is designated as slum (residential) areas, which is 5% of the total area. Another major land use category is that of Mix Use, which covers an area of 58.5 Ha, which consists of 22% of the total area. Residential use within mix use is distributed throughout the area but concentrated near Jinsi Haat and near Rajwada. This type of development, with commercial on ground floor and residential on upper floor, is a characteristic feature of transforming old city areas. The distribution of residential and mix use is shown in the Map below.

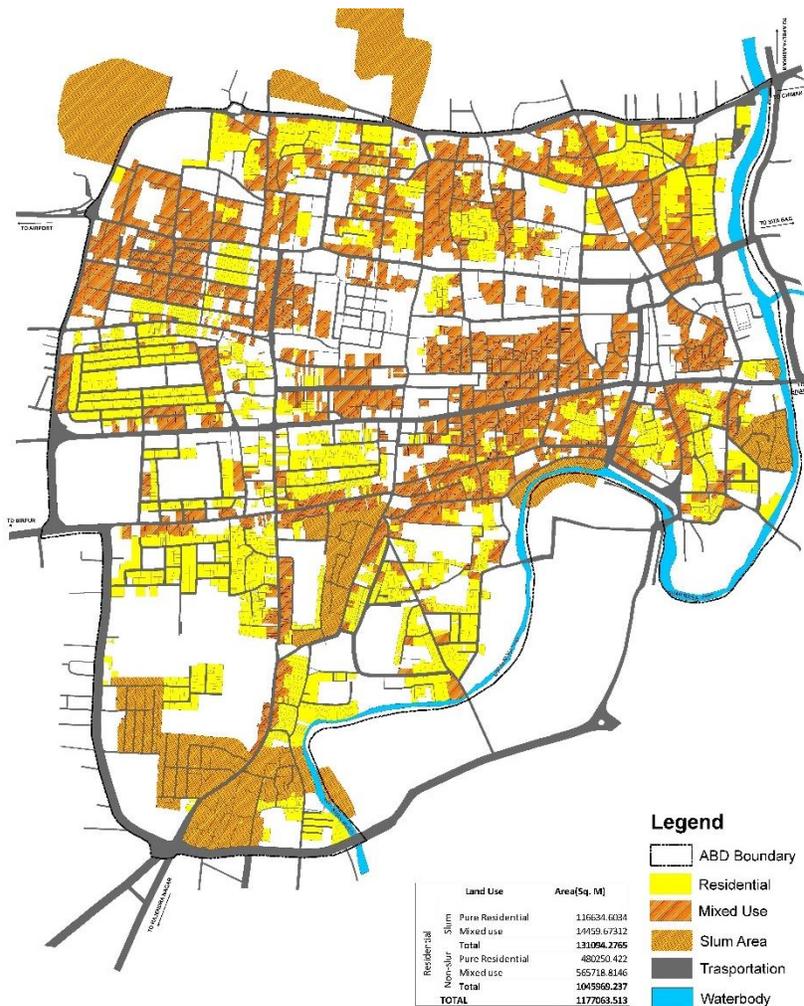


Figure 22: Residential Use in ABD Area

As per the Khasra map of Indore in 1910, the areas shown in the map below were developed in 1910. These traditionally developed areas comprise of predominantly residential and mixed uses. The part shown undeveloped (kept white in the map) are comparatively new developments. The growth is towards west and south of ABD area.

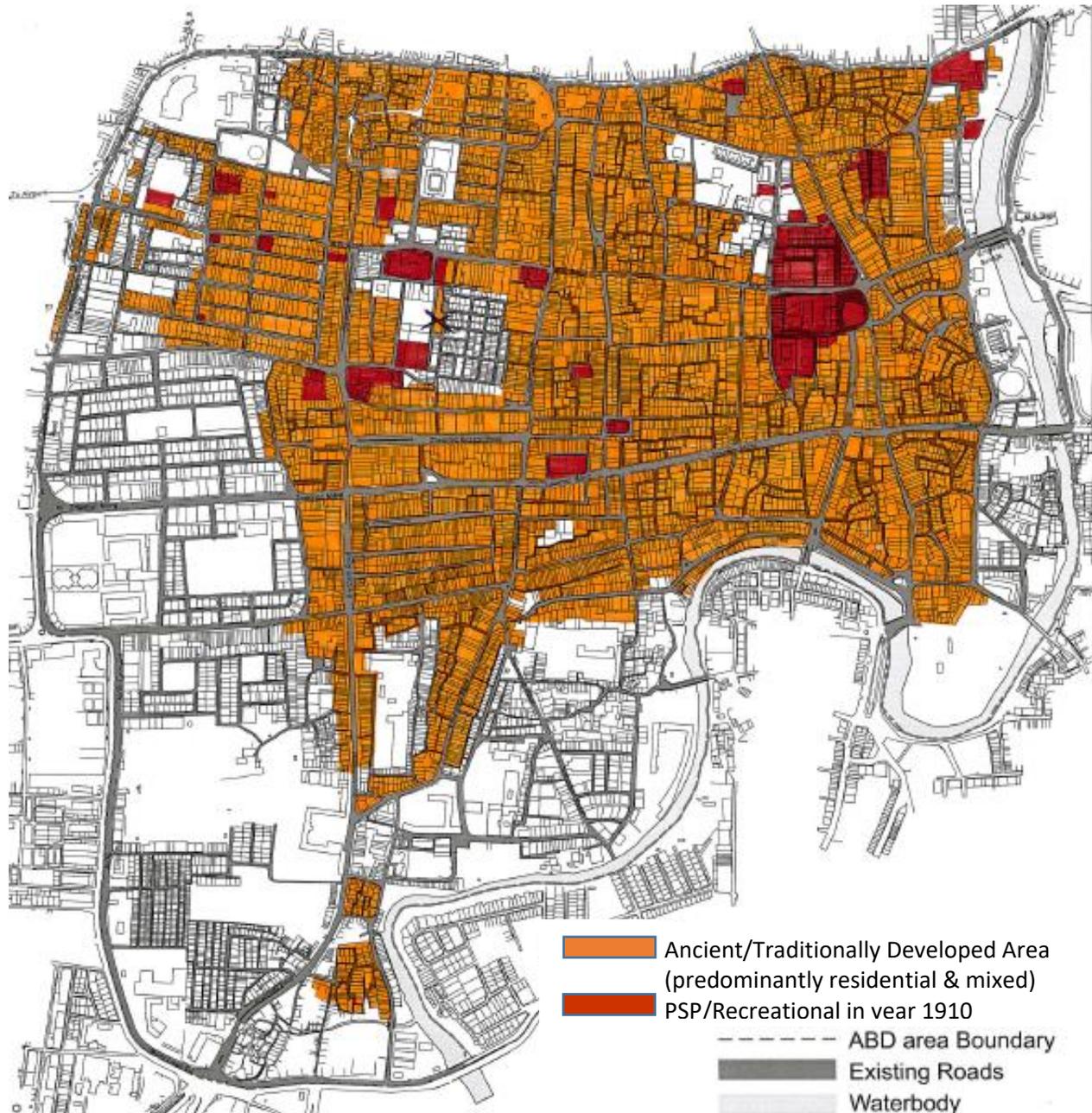


Figure 23: Traditionally Developed area in ABD

4.2.2 Commercial Use

Area surrounding the Rajwada displays a mix of uses like other city centers, but a pattern is evident from the existing land use. The central area, adjacent to Rajwada, primarily consists of commercial use with a few structures with residential use on upper floors. This commercial cum mixed use is predominant in the 'core of the ABD area'. This core is bounded by M.G Road, Maulana Azad Road, Jawahar Marg and the River and is evidently different from the rest of the area, as per land use survey. Also, area to the north of MG Road towards Subhash Marg shows location of commercial use, especially along the roads. Again, use abutting the major roads MG Road, Jawahar Marg, Biyabani Road, Shitla Mata Mandir Road, Imli Bazar Road and Gangwal to Chandrabhaga road is a mix of commercial and mixed use. The map below shows distribution of primarily commercial use in the ABD area.

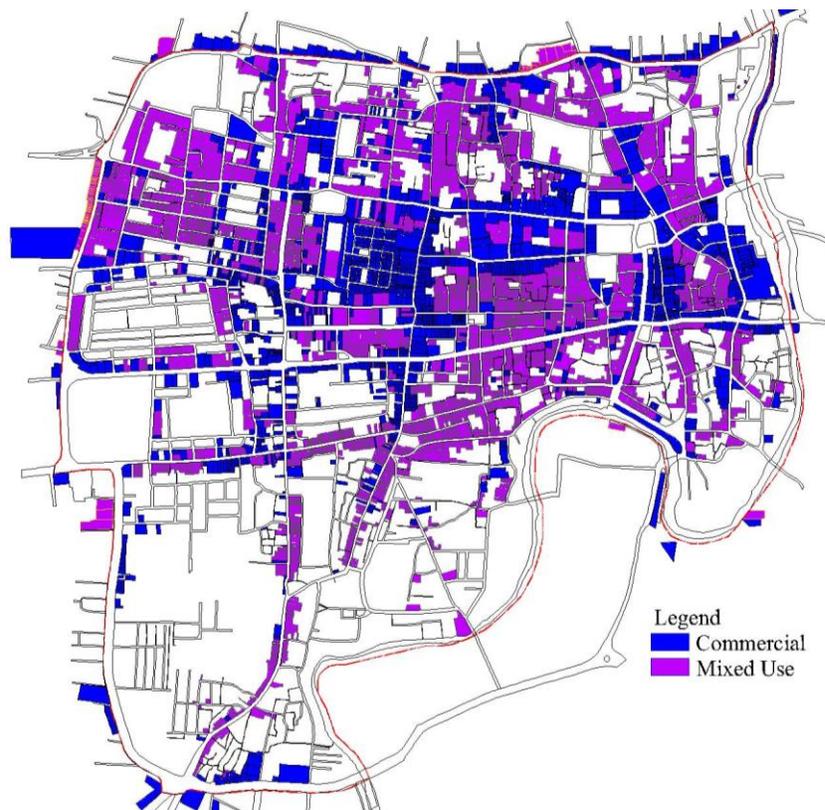


Figure 24: Commercial Use in ABD Area

Markets in Rajwada

Apart from being a historical core, Rajwada precinct can also be understood depending upon the various types of bazar and the commodities sold. These variety of bazaars has developed the links with the commodities sold and also an associative bond between the shopkeepers and the buyers. This type of association is very prominent in everyday life.

Maharaja Tukoji Rao Cloth Market- Kapda Bazaar

The market is situated in close proximity to the Rajwada (monument) and deals with a business of wholesale and retail trade in cloth since its establishment in 1918 has forced continued infiltration of its activities in adjoining residential areas.

Vegetable Market

The whole and retail fruit market is located near Veer Savarkar market and adjoining area near Krishnapura Chhatri on the road edge creating conflict in movement of pedestrian and vehicle further congesting the area in the core.

Hardware- Bohra Bazar

This market seats at the back of cloth market and also have some shops at Jawahar marg. This trade has also assumed the status of regional market. Loharpatti is also known as communal market as it dominantly has shops whose owners belong to Bohra community.

Gold & Silver Market - Sarafa Bazaar

The market is tactfully located near Rajwada which was planned so as to enjoy the security of being in close proximity to the Royal palace. The market today has dual nature; it is fully fleshed gold and silver market which has a typology which allows the market to transform into a food bazaar (khau- gali) at night.

Decoration Items

This market is situated all along the forecourt of Rajwada. This market is active during all months of the year. The items keep on changing depending upon the various festivals. It provender decoration items aiding to Diwali decoration to decoration during Christmas.

Khajuri Bazaar

The market is situated on both the edge of Mahatma Gandhi road from Gora Kund Chauraha to Rajwada. It is a retail as well as whole sale market of books, notebooks and wedding cards. It is the only market of its kind in whole Indore which provides vivid varieties of paper.

Marothiya Bazaar

This market deals in spices and grocery items. The market has both wholesale and retail Units.

Bartan Bazaar

Bartan Bazaar also known as Kasera Bazaar is specially known for its wide variety of Utensils and Metal wares. This market also deals in wholesale and retails. This area has a unique identity with decorated utensils being displayed on the shop fronts which sometime achieve four storey height during Diwali celebrations.

SN	Informal Market Location	Characteristic
1	Nandlalpura Sabzi Mandi	Fruit & Vegetable
2	Etwaria Bazar	Fruit & Vegetable
3	Tori Corner	Fruit & Vegetable
4	Behind Lal Hospital, Malhar Ganj	Fruit & Vegetable
5	Rajwada Road	Mixed
6	Krishnapura Bridge	Mixed
7	Hamilton Road	Fruit & Vegetable
8	Subhash Marg	Building Material

Table 4: Unorganised Markets in ABD area

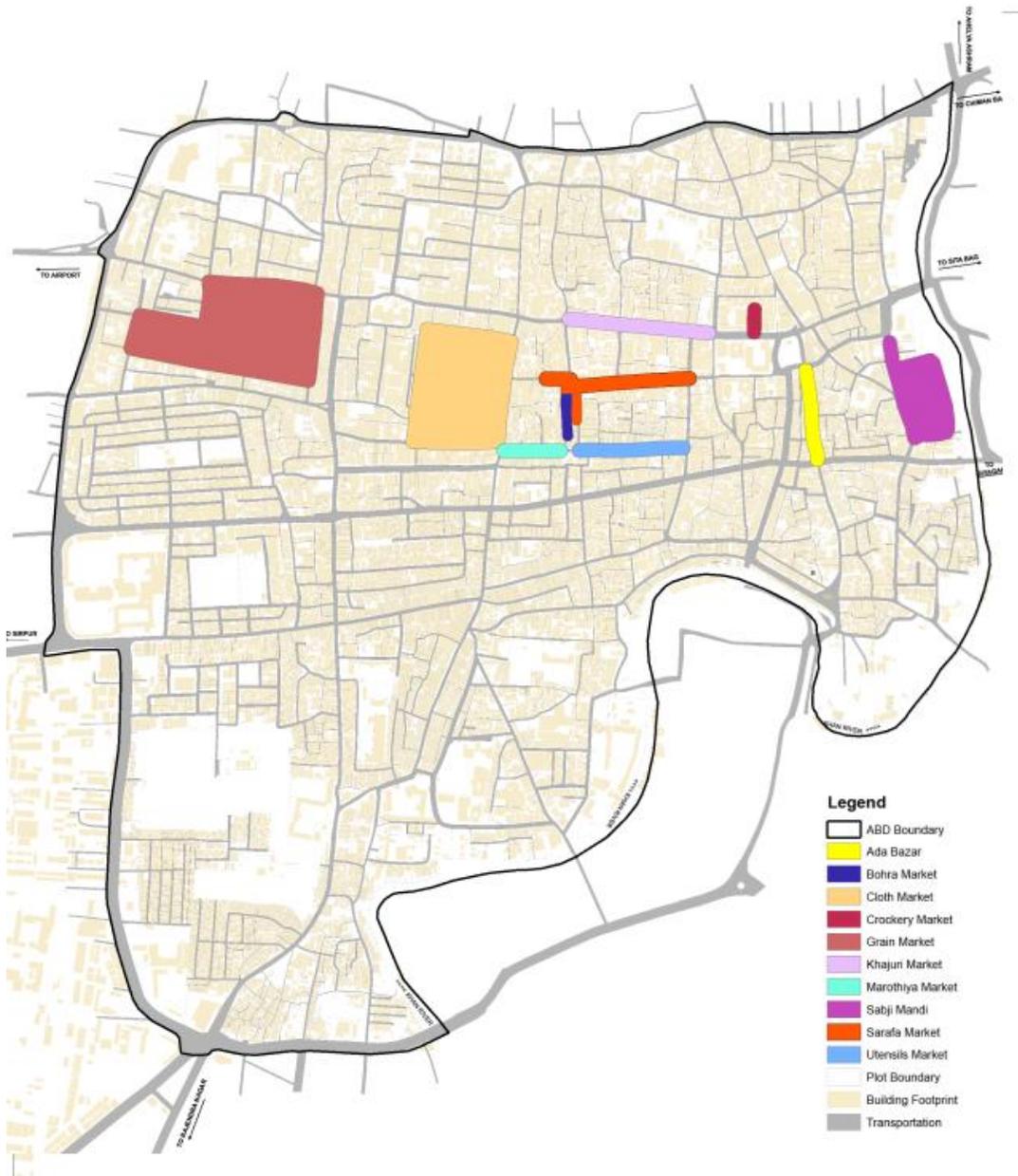


Figure 25: Specialized Markets in ABD Area

Unorganized Markets

The city core comprise of some roads along which informal markets are being operated. Such markets are dominated by fruits and vegetable informal shops. The following table shows their location as well as the characteristics of these markets.

4.2.3 Public-Semipublic Use

Public Semi Public use covers facilities relating to education and health, religious buildings and related facilities like dharamshalas, other socio-cultural facilities like police station, post offices etc., government offices and public areas like Rajwada and Chhatris. These areas cover around 37.8 ha, which is 14% of the total area. Educational facilities are abundant in the ABD area with many schools and colleges occupying big plots of land, especially in the southern part. These areas are generally surrounded by residential and mixed use. Distribution of PSP in the ABD area is shown in the map below.

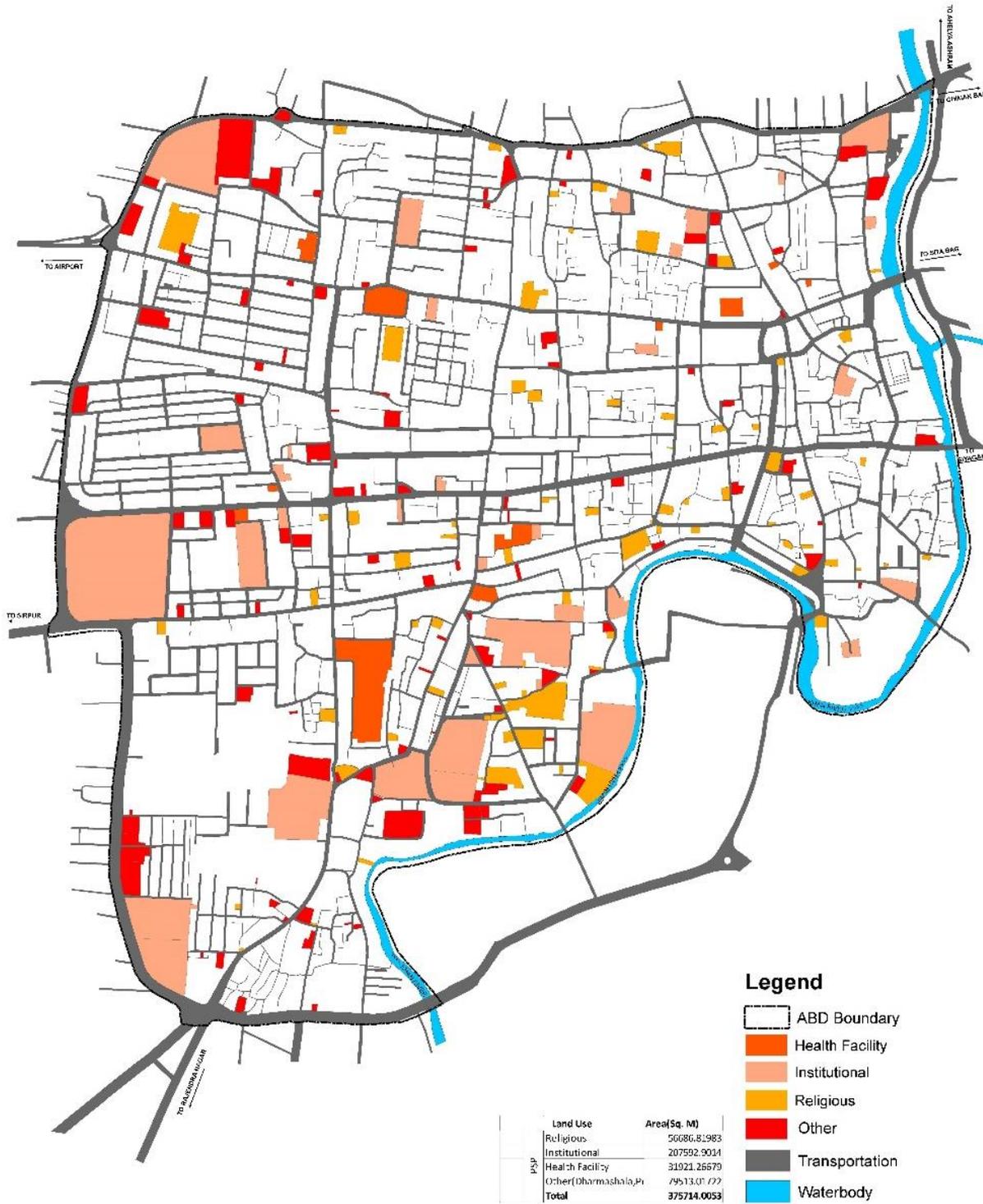


Figure 26: PSP Use in ABD Area

4.2.4 Facility & utility

A new land use category is created from within the PSP category to differentiate between physical infrastructure and social infrastructure. However, it also includes public facilities like cremation ground and burial ground, for which DCR for PSP are not applicable. It covers an area an area of 4 Ha and mainly consists of a Kabristan adjacent to Biyabani road, and OHT at Jinsi Haat and Subhash Chowk. The distribution of these facilities and utilities is shown in map below.

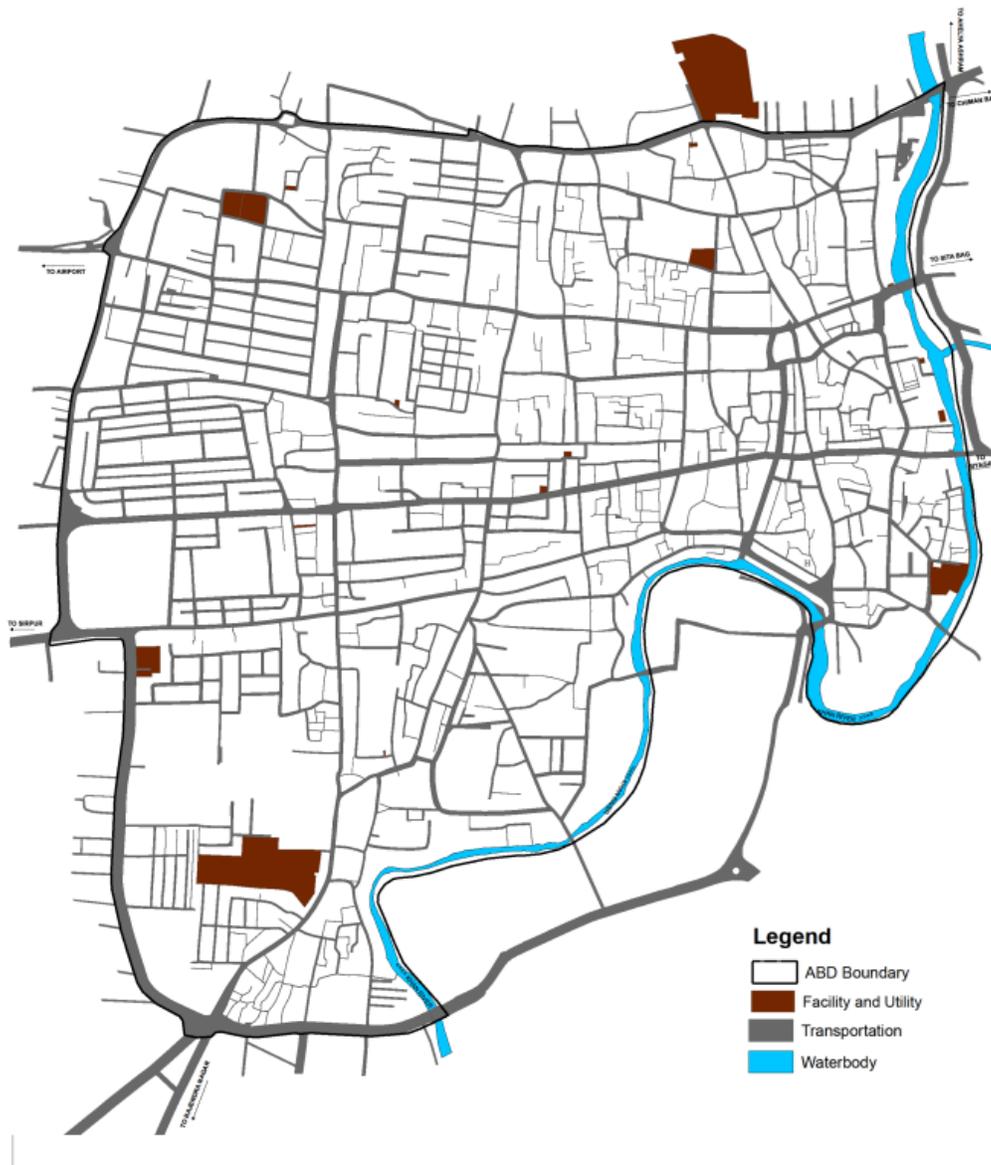


Figure 27: Facilities & Utilities in ABD Area

4.2.5 Transportation

The ABD area is well connected by MG Road, Jawahar Marg, Netaji Subhash Marg and Biyabani Road with surrounding areas. At present, all streets are vehicular. Road widths range from as narrow as 5 m (streets) and as wide as 24 m (Main roads). As the ABD area is only accessible by road, as of now, transportation use is assigned to roads and parking areas. Road network and parking covers an area of 44.4 Ha, which is 16% of the total ABD area. This also includes very narrow pedestrian streets which are as narrow as 1.5 m in some cases. The following map shows the road network and parking areas in the ABD area.

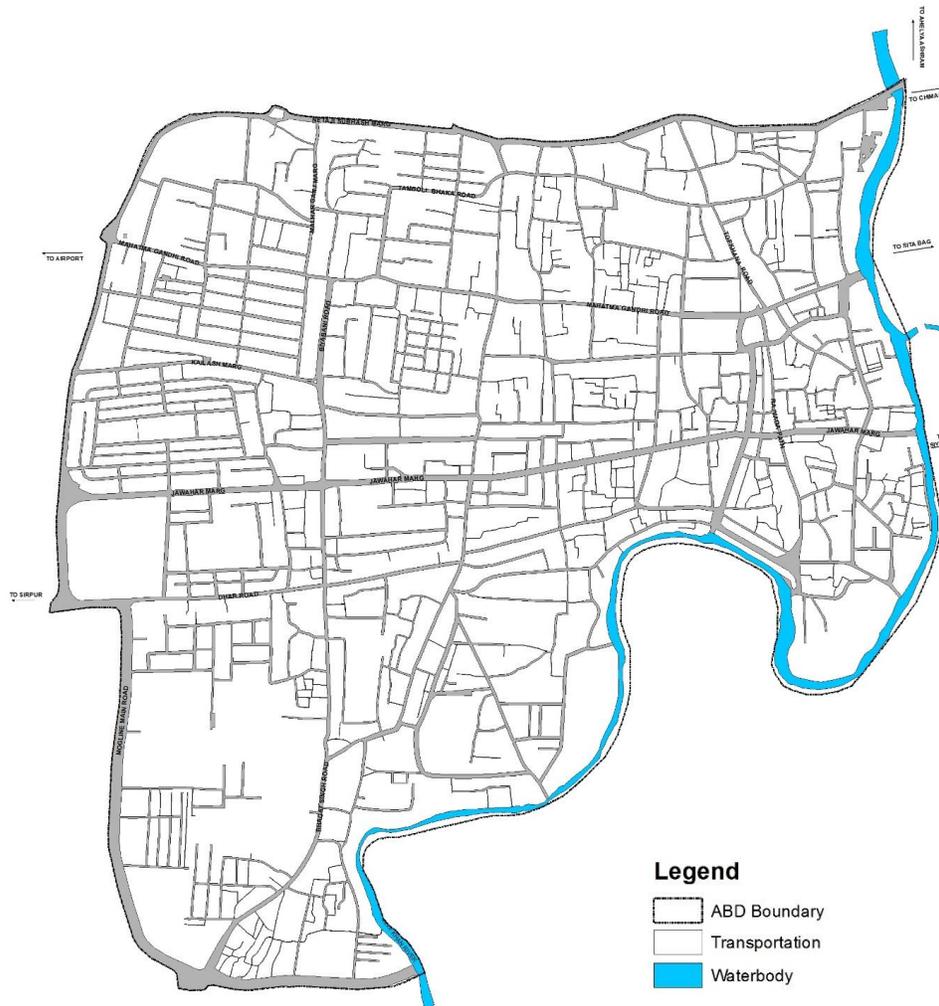


Figure 28: Road Network in ABD Area

4.2.6 Recreation

Distribution of area under recreational land use, covering parks and playgrounds, is skewed in the ABD area. Big parks are present in the planned residential areas in the western part of the ABD area and are non-existent in other areas. Parks and playground occupy only 6 Ha of land which is 4% of the total area. This indicates deficiency in green spaces in the ABD area. The map below shows the distribution of green areas in the ABD area.

There are significant number of heritage sites/ buildings in ABD area. Some of the well-known sites are: Rajwada, Bada Ganapati, Krishnapura Chhatri, Gopal Mandir, Hari Rao Holkar Chhatri, Kanch Mandir, Durga Mata Mandir, Mallhar Rao Holker Chhatri.

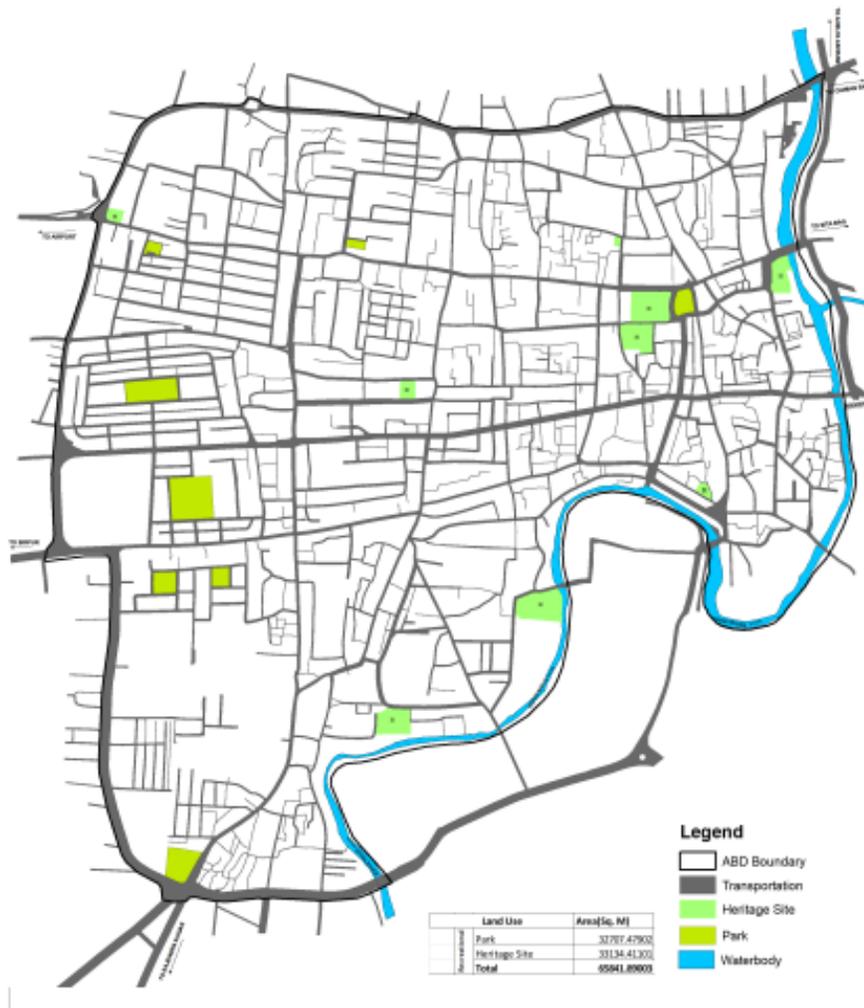


Figure 29: Recreational Use in ABD Area

4.2.7 Open Area

As the ABD area is under transformation, many areas have potential for infill. These areas generally lie vacant due to various reasons and end up being locked for development. A map of open areas shown below, shows huge open areas which can be used for providing deficient facilities and services. These open areas cover an area of 16.8 Ha, which is 6% of the total area.

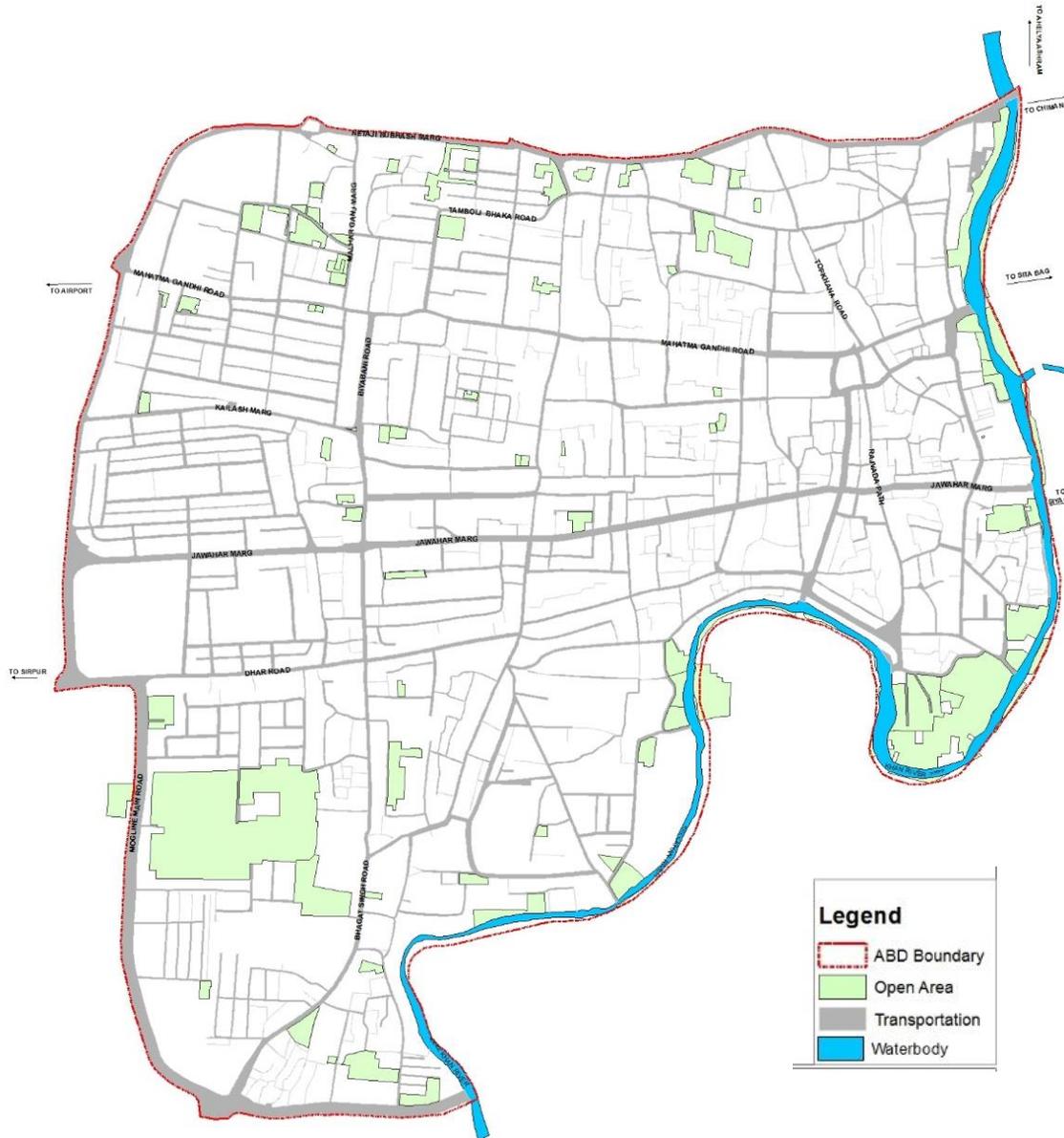


Figure 30: Open Space in ABD Area

In addition to the open spaces identified above, plots with abandoned houses or houses in dilapidated condition have been identified in and around Heritage Precinct Area of ABD. Most of these houses are privately owned. In case ISCDL wants to use these spaces for public purposes, the authority may try to negotiate with the private owners of these plots/ houses. The figure below shows these plots/ houses.



Figure 31 Abandoned/Dilapidated houses

4.2.8 Water Body

River Saraswati and River Kanh which meet near Krishnapura Chhatri form the eastern boundary of the ABD area. Proposals for its rejuvenation along with riverfront development are part of the Smart City Proposal. The river covers an area of 6 Ha, which is 2% of the total ABD area.

4.2.9 Building Heights

To assess the intensity of development, land use survey also collected data for number of floors in the building. Map below indicates that maximum buildings in the ABD area have G+2.

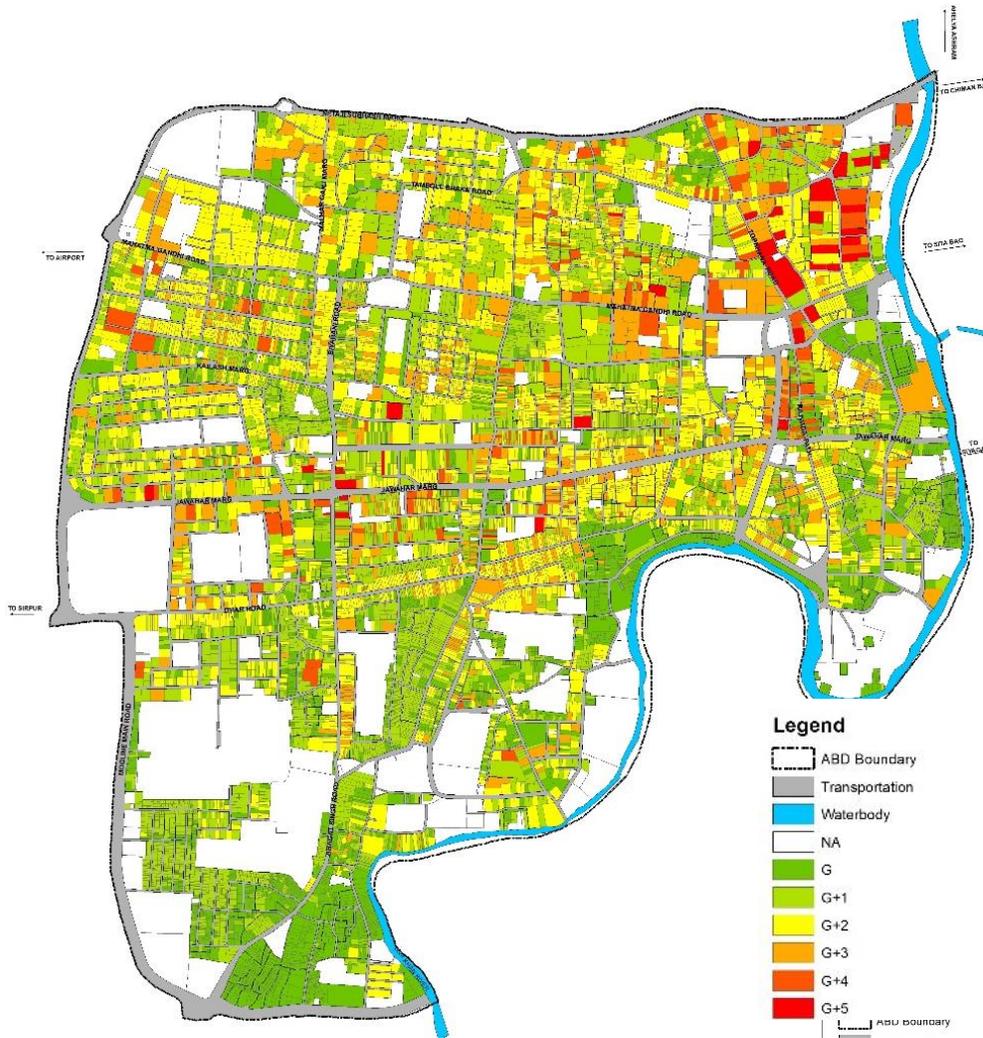


Figure 32: Floor Map of ABD Area

4.3 Infrastructure Gap Assessment

Population projection as per Water Supply & Sewerage DPR:

The DPR of water supply and sewerage system for ABD area is already prepared by IMC. As per suggestions of IMC, the future demand of water and generation of sewage should be considered as mentioned in DPR.

Table 5: Projected Population in ABD area

ABD Area Population			
Existing	Projected		
2015	2020	2035	2050
120012	166349	205550	249687

Source: DPR of ABD Area, Water Supply & Sewerage System, 2016

Floating Population

Floating population in ABD area majorly comprise of people coming for shopping, tourists, workers in commercial establishments and staff in offices and other institutions present in the area. As per projection of water supply and sewerage DPR, annual growth rate of population is expected to be 2.12%.

Year	Population	Annual GR
2015	120012	
2050	249687	2.12%

If we consider generally accepted annual growth rate of 1% for any area (in which floating population is not included), the expected resident population in 2020, 2035 and 2050 is as shown in table below:

Year	Resident Population @1% annual GR
2015	120012
2020	126134
2035	146437
2050	170009

It is assumed that supply of water for floating population is done as 1/3rd of per capita requirement. The additional supply is assumed to cater the demand by floating population.

4.3.1 Water supply

4.3.1.1 Present Water Supply sources;

1. Gambhir Line (Direct Supply)
2. ESR (3 Nos.)
3. Ground Borewells (350 Nos.)

4.3.1.2 Water Input from All sources to ABD Area

Following locations were identified as water inlet points to the ABD project Area;

1. Bada Ganpati Square on Gambhir Line (700 mm Trans. Main)
2. JINSI Hat ESR on Narmada Inlet (500 mm Feeder Main):
JINSI Hat ESR of 3 ML capacity is located at almost in the centre of zone no 1 area. The JINSI Hat ESR serves dedicatedly to ABD command area.
3. Subhash Chowk ESR on Narmada Inlet (450 mm Feeder Main):
Subhash Chowk ESR of 2.25 ML capacity is located at zone no 2 area. The Subhash Chowk ESR serves to command area of ABD.
4. Chhatribagh ESR on Narmada Inlet (600 mm Feeder Main):
Chhatribagh ESR of 3.4 ML capacity is located in zone no 2. Chhatribagh ESR serves the command area of ABD project area completely.

The Water Input summary for the Project area is as below;

<i>Water Input to ABD Area</i>				
Sr No.	Source	Location	Water Input	
1	Devdharam WTP	At Bada Ganpati Sq.	5.56	ML
3	Narmada	JINSI Hat ESR	2.21	ML
4	Narmada	Subhash Chowk ESR	2.72	ML
5	Narmada	Chhatribagh ESR	3.23	ML
Total Water Input at ABD Area			13.72	ML

(Source: Detailed Project Reports for Water Supply and Sewerage System of ABD Area Indore, DRA)

Thus, the ABD Project area is receiving **13.72 ML water** every alternate day for distribution to water consumers.

4.3.1.3 Direct Supply points

Apart from above, direct supply points or tapings to feeder mains were also observed in the project area. As the tapping points for sources are scattered and needs to install the flow meters for better accountability. It has been observed that in absence of flow measuring devices, the dispute between actual water supplied is a routine affair. Hence, IMC shall install flow meters immediately.

4.3.1.4 Present Service Reservoirs

There are 3 ESRs which are marked and shown in Figure.

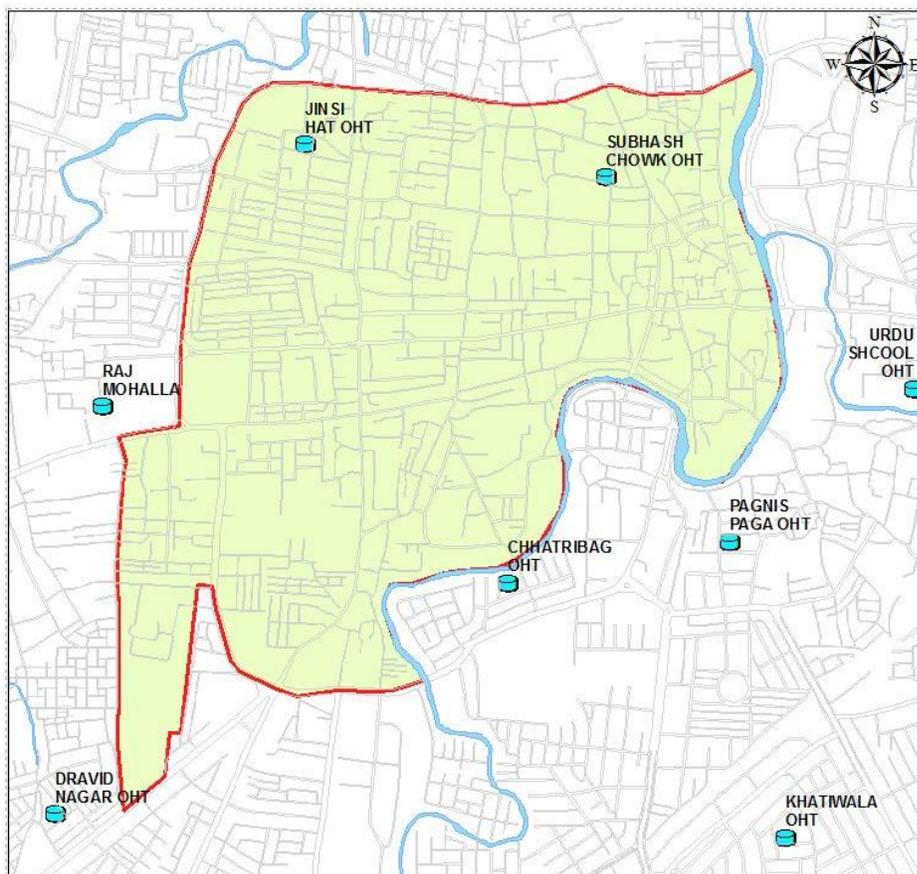


Figure 33: Location of ESRs in ABD Area

(Source: Detailed Project Reports for Water Supply and Sewerage System of ABD Area Indore, DRA)

4.3.1.5 Distribution System

The existing pipelines distribution network of the ABD Project Area are shown in Figure below;



Figure 34: Water Supply Distribution Network in ABD Area

(Source: Detailed Project Reports for Water Supply and Sewerage System of ABD Area Indore, DRA)

The total length of the existing distribution network in the ABD Project Area is around 76.53 km. % Share of Length of different pipes in the distribution system are 58% of the pipe length is of ACP, 22% is CI, 8 % DI, 3% HDPE, GI & PSC and 2% MS. The majority of pipe laid is Asbestos Concrete pipes. The distribution network of ABD project area is very old and dilapidated condition and most of the pipes required complete rehabilitation and revamping with inclusion of leak proof

pipe and material in order to provide the quality water. The network assessment suggests high level of UFW in the existing network.

4.3.1.6 Service Connections

Ward wise connection details collected from IMC and estimated water connections is calculated based on the % ward area covered under the ABD project area for the corresponding ward. There may be approximate 11,854 connections in ABD area. This figure may increase as per actual condition which can be verified by property survey method.

4.3.1.7 Bore wells in Project Area

As per the data collected from IMC, there are total 350 nos. ground bore wells in the ABD Project area. The bore wells are being operated for average 2 to 3 hrs depending upon the water scarcity area. The energy bills are being paid by IMC. The locations of the bore wells are represented on the map below;

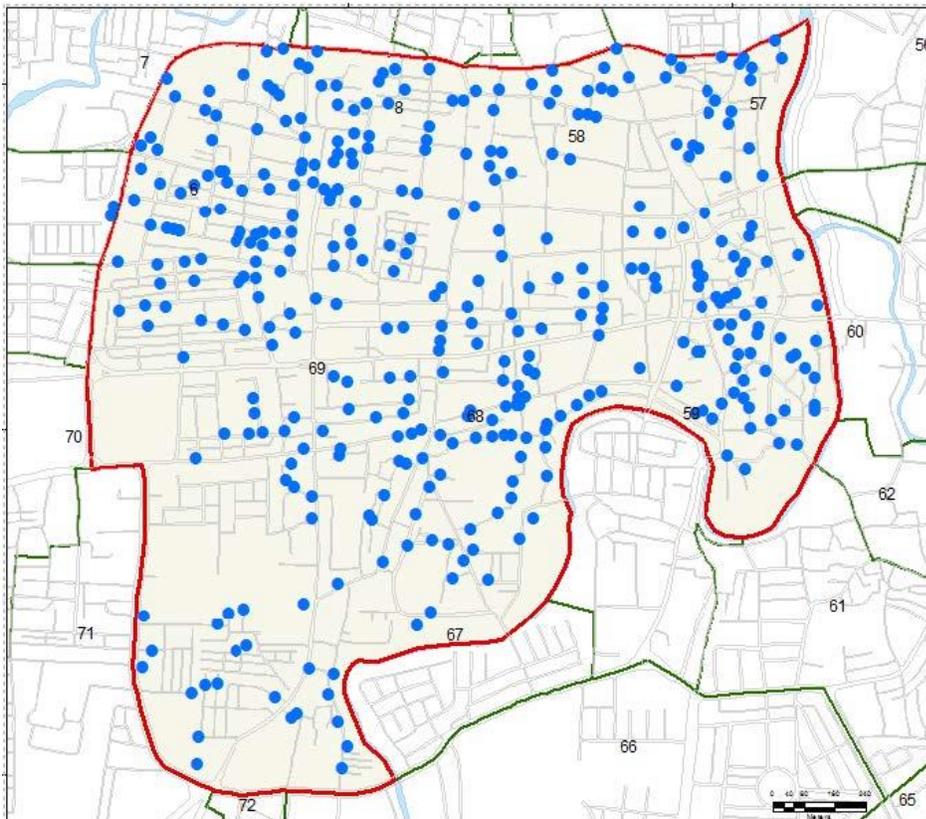


Figure 35: Location of Bore Wells in ABD Area

(Source: Detailed Project Reports for Water Supply and Sewerage System of ABD Area Indore, DRA)

4.3.1.8 Water Quality

Water Quality sampling is being performed by IMC at production as well as distribution level. The hygienic standards of safe and potable water supply to the consumer in IMC area rests with IMC. As per data provided by Water Quality Testing Department of IMC, for the period from Jan 2015 to Sep 2015, it can be observed that out of 12314 samples tested during 9-month period, 11091 samples were fit and 1223 samples tested unfit. 10% samples of the total samples tested were unfit for drinking water purposes.

4.3.1.9 Gap Assessment

Following are the critical issues prevailing with existing water supply system hence resulting into gap between water management & citizen services

1. Direct Supply

In current scenario, the bulk water supplied into the system has too many direct tapplings for distribution of water resulting into pressure drop and non-filling of ESR and leading to unequitable distribution.

2. Metering

The city does not have any metered water connections. Hence, the quantity of water consumption and the physical losses in the city is difficult to be estimated. Due to absence of meters in the project areas, Flat rates are fixed for the consumers which vary from residential, industrial and for commercial connections. In absence, proper water tariff policy, there is increase in customer dissatisfaction and poor customer services.

3. Improper operational Zones

Serving area/ zone served by each elevated service reservoir (ESR) was not designed as per their capacity. Despite disarrayed service area, existing pipelines have been found laid in haphazard manner. Thus, the residents get water with less pressure. The operational zones are created with multiple tanks. There is common inlet and outlet for tanks. No integrated approach was observed of demand-supply management.

4. Water Leakages

There is substantial loss of water due to old and worn out pipelines leading to leakage. The water is also wasted in Community Stand Posts and through the Supply Network. There is substantial wastage in the public stand post during supply hours due to the free flow of water. In addition, there is significant leakage in the pipelines of which there is no systematic management for detection and repair. There is significant wastage in the house connections also due to intermittent supply where the beneficiaries throw away stored water and store again the fresh daily supply. In addition, there are more chances of having unauthorized / illegal connections in the distribution system.

5. Borewells

Inadequate distribution network resulting less coverage area and dependency on bore well water / hand pumps. The shortfall in supply coverage is presently made, to some extent, by ground water through motorized bore wells. Due to the rapid un-sustainable depletion, of the groundwater table, the deep motorized tube wells have become uneconomical due to energy and repairing cost vis-vis and low yield.

6. Monitoring System

There is no proper instrumentation to monitor flow- pressure in transmission & distribution network. In absence of proper instrumentation system there is no accountability for water supplied and distributed. This is leading to un-efficient operation of the system.

Future Demand

As per the DPR of water supply total demand of water in 2020 is 28.1 MLD. The calculation is done based on target of 150 lpcd of water in ABD area. The demand in 2035 and 2050 is 34.69 MLD and 42.09 MLD respectively.

Table 6: Future Water Demand

Year	Population	Water Demand (in ML)	Fire Demand (100(P) ^{0.5})	Total Demand (in ML)	Total Demand (10% dist. Loss)
2020	166349	25	0.35	25	28.10
2035	205550	31	0.39	31	34.69
2050	249687	37	0.43	38	42.09

4.3.2 Sewerage

The existing sewerage network is very old. It was laid in 1936 during Holkar's State and outlived their life. There is no House Service connection at some places of the project area due to conservancy lanes. The existing sewerage network consists of 36.11 Km in length.

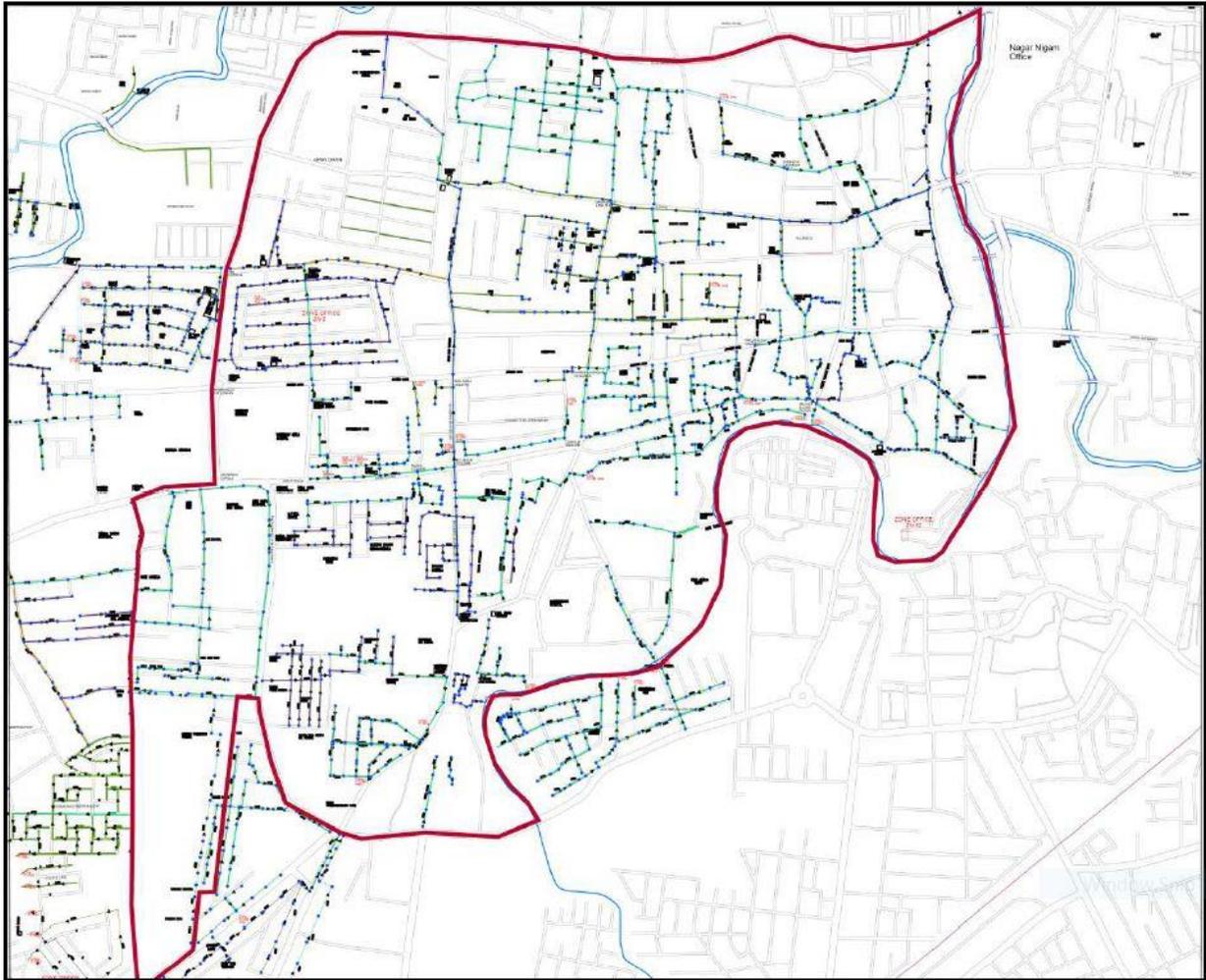


Figure 36: Sewerage Network in ABD Area

(Source: Detailed Project Reports for Water Supply and Sewerage System of ABD Area Indore, DRA)

4.3.2.1 Present Disposal

Area is connected with Primary and secondary sewerage network lines. But at some places Sewage disposal is connected with storm network or disposed off in natural drains or in street open drains.

4.3.2.2 Gap Assessment

1. Sewerage System

The Sewerage system in Project area has been laid during the Holkar state in 1936. Overall city is not covered with sewerage generation and most of the lines are old and not able to cater the sewage. Hence, augmentation of sewerage network is required.

2. Sewerage Collection

At per present scenario, primary sewerage network is laid under JNNURM and collection system was developed by IDA & IMC in patches. The linking between Secondary to primary network is lacking. At few places, the secondary networks are disposed off in natural drain. However, to stop this disposal IMC has initiated nallah tapping project and other project to connect such disposal and connect the collection system to the primary network so that complete sewer will carry through the pipe and will be treated at STP.

Future Demand

Based on the demand calculation of water and standard assumption of sewage generation @ 80% of water demand, total sewage generation is calculated to be 21 MLD in 2020. The generation in 2035 and 2050 is calculated to be 26 MLD and 31 MLD respectively.

Table 7: Generation of Sewage in Future

Year	2020	2035	2050
Population	166349	205550	249687
Total Area in ha.	300.27	300.27	300.27
Total Water Demand	28.1	34.69	42.09
losses 15%	23.89	29.49	35.78
water supply rate(Say)	144	144	144
Sewerage generation (80%)	115.2	115.2	115.2
sewerage generated in MLD	19.16	23.68	28.76
infiltration in MLD (6000 liters/Ha./day) As per CPHEEO para 3.2.7	1.8	1.8	1.8
Total	20.96	25.48	30.56
Total sewerage in MLD (Say)	21.00	26.00	31.00
LPCD Rate for Sewer generation (Say)	126	126	126

4.3.3 Solid Waste

4.3.3.1 Waste collection: Present Scenario

1. Storage of domestic waste at source

The waste generators in ABD area do not segregate the waste prior to disposal. These generators (households, restaurants, shops, etc.) dump mixed waste into Dustbin, drains, and open dumps, Waste disposal in Open dump in Road side Littering of waste outside DP bin. No segregation is done at primary level.

2. Storage of market and trade waste at source

IMC provide door-to-door MSW collection service to its residents in 20 wards. Even though the waste is collected by Jagirdars in most of the city area residents throw the household waste outside their residences or in containers close to their premises from where sweepers collect waste by means of rickshaw/Handcarts/trolley and dump the same into the dustbins or onto streets (open dump). Generators themselves dispose-off waste in nearby waste collection points/ containers, onto the streets, or in the nearby drains. The safai karamcharis do the street sweeping, collect drain silt and form waste heaps on roadsides and dispose them off at a nearby open dumps. These unorganized disposal methods have resulted in accumulation of solid waste on road sides and vacant plots and in low lying areas and in storm water drains at many places.

In the present scenario, all the waste generated from the market are thrown/kept/dumped in the night in front of the establishments and in the morning, that waste is collected through handcarts and transferred to the depot. And due to the dumping in the night time till morning 25% -30% waste is scattered and spread by animals and sometimes by wind and during rains partial waste is drained into the drains.

3. Construction waste

Presently the construction and demolition waste is dumped in low lying area or sent at the trenching ground.

4.3.3.2 Gap Assessment

To overcome all the deficiencies of present system and to establish solid waste management system for ABD area as per and Solid Waste Management Rules 2016 following actions are required.

1. 100% door to door collection and storage of waste.
2. To make city bin free so as no storage of waste can be done along roads.
3. Fixing of litter bins in all commercial areas.
4. Establishment of modern transfer stations at strategic locations.
5. Establishment of waste to energy plant.

4.3.4 Storm Water Drainage

Indore has 126.10 kms of underground storm water drainage network against the total Existing Road Length of 1912.2 Km (6.59% coverage). So, There is as Gap of 93.41% in Coverage of Storm Water Drainage Network on Master Existing Road Length. There is no underground storm water drainage in ABD area, eventually storm water ends in road side open drains, Nallahs, & river.

4.3.5 Traffic and Transportation

4.3.5.1 Background

With increasing population and economic base, Indore has witnessed a tremendous increase in the vehicular growth. Annual average growth rate of registered vehicles in Indore experienced an increase of 10% which results in pressure on road space, deteriorating level of Service and difficult traffic conditions. Traffic condition in the study area found to be severe on many major corridors and meanwhile effective capacity of road section is reduced as a cause of parking issue. The level of service of road sections almost reached its threshold limit. Nonetheless, there is an urgent pressure to find the solution both short term and long-term, that can engage to solve the issues of complex demands of traffic and transport management.

4.3.5.2 Current Scenario

Total number of registered vehicles in Indore has increased at an annual average growth rate of 10%. Base year total registered vehicles in Indore is 17,02,672, projected to 20,19,812 and 36,05,512 in 2021 and 2041 respectively.

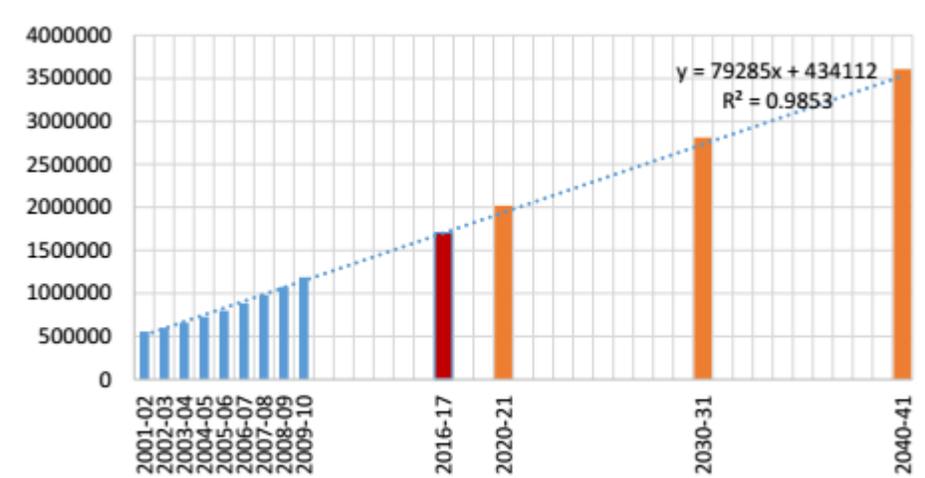


Figure 37: Registered vehicular growth for base year and horizon period

There is no data regarding number of vehicles in our area of consideration i.e. ABD area. To find out existing volume of traffic in ABD area primary surveys has been conducted which include:

- Traffic Volume Count Survey
- Parking Survey
- Pedestrian Count Survey

A reconnaissance survey has been done to identify the issues relating to capacity constraints, parking, etc. as well as circulation pattern in and around study area. The collected data was analysed to identify the capacity constraints, threshold limit and level of service (LOS) based on the IRC 106-1990. Primarily, Base year fully loaded network has been created by developing a fuzzy-based prediction model framing relation between abutting land use and road width as input parameter. The next step was to calculate the theoretical

and effective capacity of road sections, from which the roads that require serious attentions are identified for improvement.

4.3.5.3 Traffic Volume Count Analysis

Average Peak hour flow:

The survey was conducted on major road network where the classified traffic volume count has been recorded for the duration of 12 hours. The overall peak hour is identified to be 11:00 AM to 12:00 PM in the morning and 5:30 to 6:30 PM in the evening. The average peak hour volume on the locations for both side is 1608 PCUs/hr. The peak hour volume of traffic contributes to 25% of the overall traffic on these locations. The maximum flow was observed in TVC location 11 which is from Sanjay Setu to Veer Sawarkar Market. Whereas, the maximum peak hour flow is observed in Gurudwara to Narsingh Bazar Chowk on Jawahar Road which is 3887 PCUs/hr.

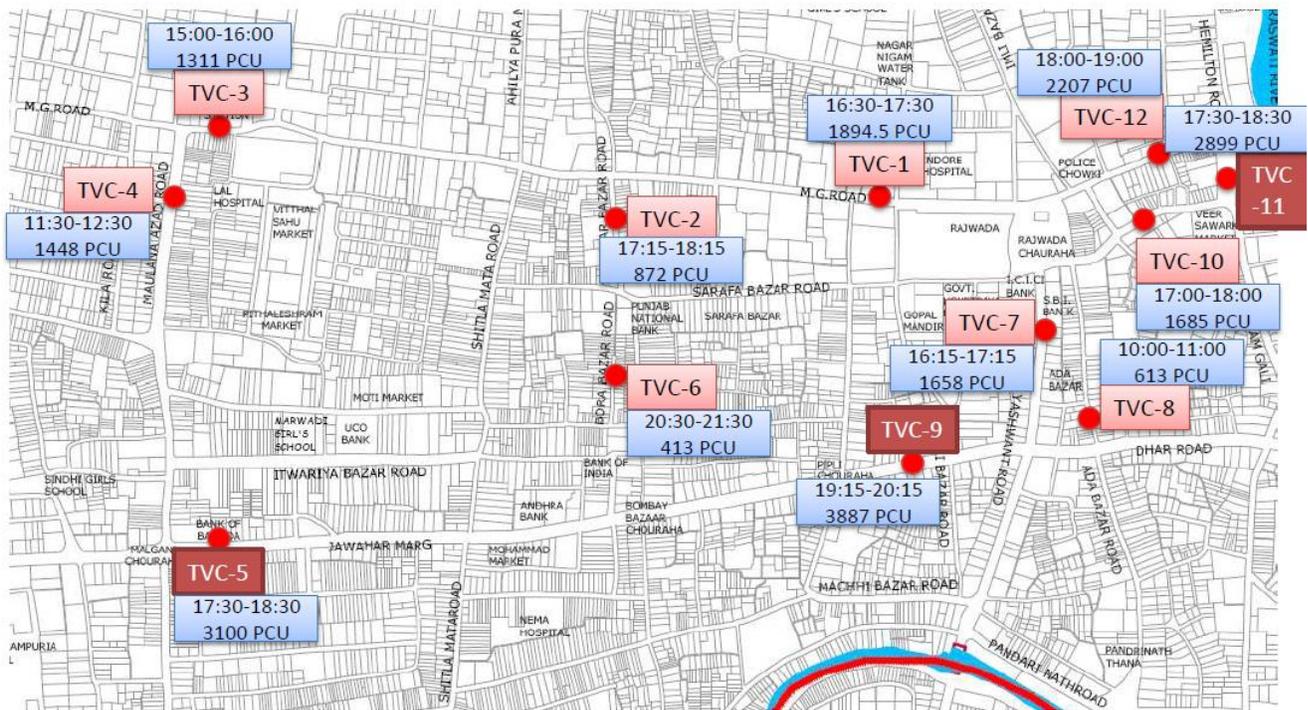


Figure 38: TVC Survey Locations and Peak Hr Flow

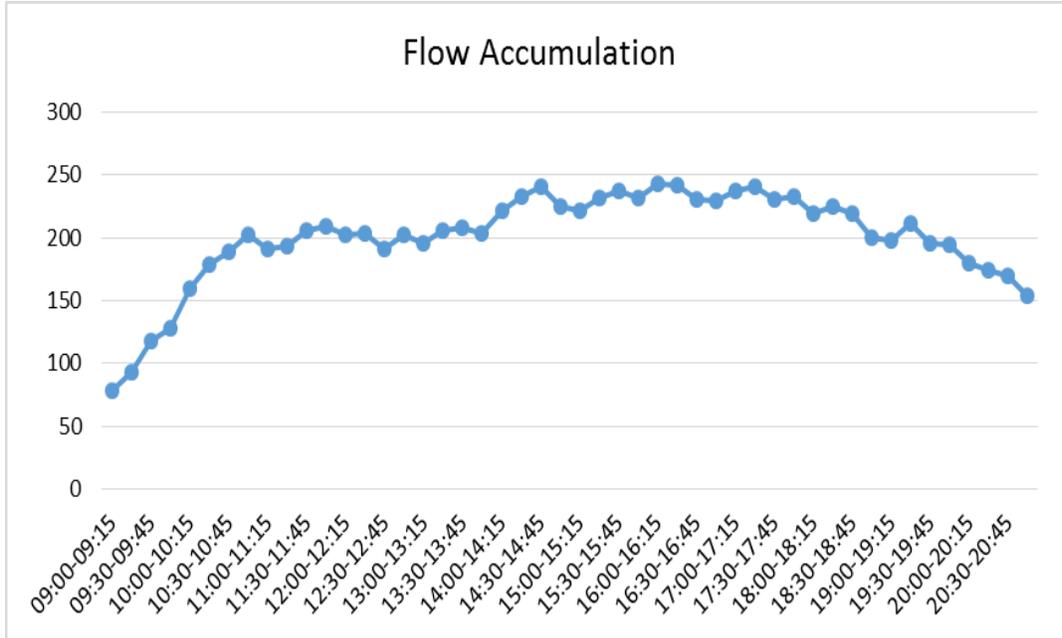


Figure 39 Average Volume accumulation graph for surveyed locations

Mode share:

The mode share shows the most dominant mode as two wheeler which contributes to 58% of the overall traffic. Auto rickshaw and Cars comprises of 17% and 16% respectively, followed by cycle which is 5%. The figure below represents the mode composition of the traffic on the surveyed locations.

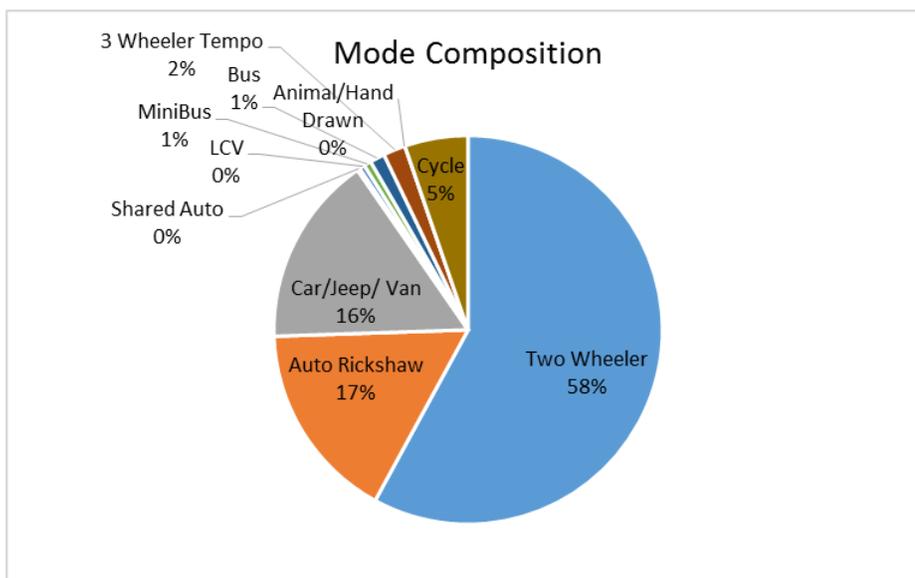


Figure 40 Vehicle composition

The figure below shows the average composition of the passenger traffic on the surveyed locations, which shows the private vehicles are predominant with 84% contribution in the overall traffic. Public transport shows a negligibly small whereas, intermediate public transport contributes to 16%.

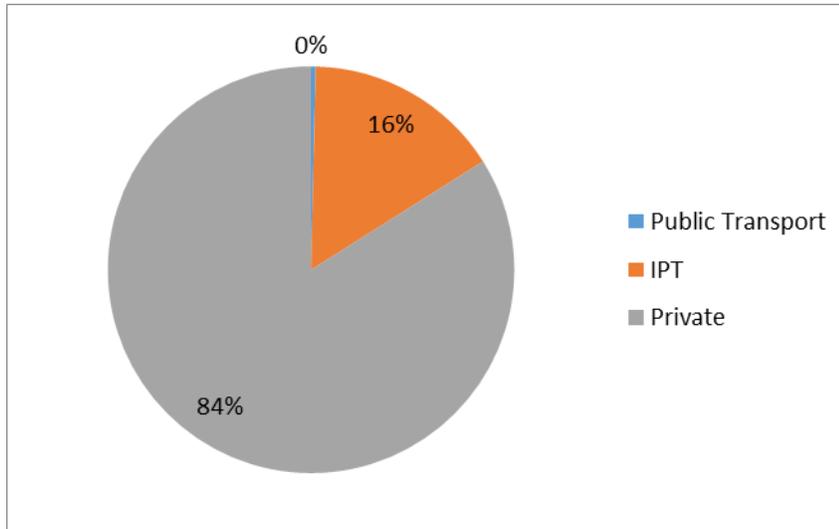


Figure 41 Average composition of Passenger Traffic

The figure below shows the share of fast and slow moving traffic for 12 hours volume count. 96% of the overall traffic is motorised vehicles which is fast moving. Whereas, only 4% of the traffic comprises of non-motorized traffic which is slow moving.

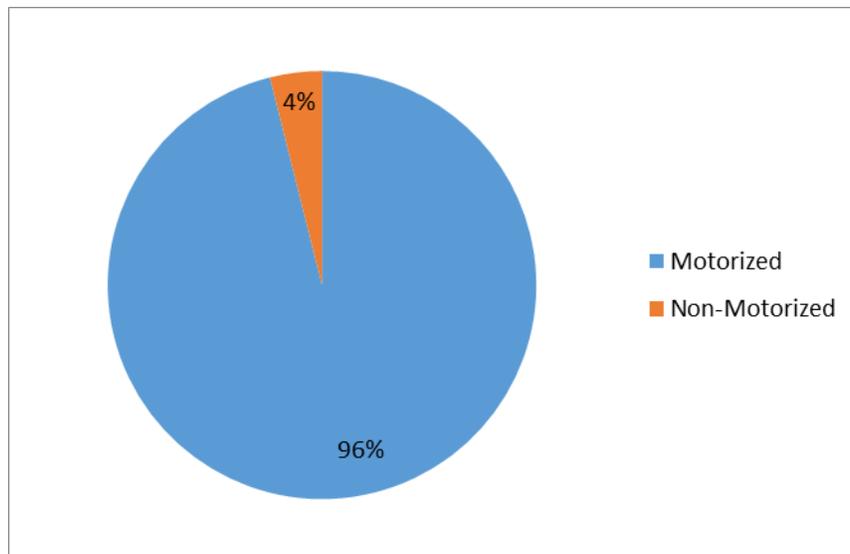


Figure 42 Fast and slow moving traffic

Volume Capacity ratio:

The average volume of the locations during 12 hours is 14457PCUs. The average peak hour flow is 1608 PCUs/hr and the average V/C ratio is 0.96 which falls under level of service F. 58% of the network falls under the LOS F, 33 of the network falls under the LOS C and only 9% of the network falls under LOS B. LOS F which is predominant on major road network do not ensure a safe and convenient traffic flow.

4.3.5.4 Parking Survey

An on-street parking survey was conducted at 9 locations in the ABD area, focusing specifically on the core area or 'Heritage Precinct Area', which experiences traffic congestion and low level of service on many roads.

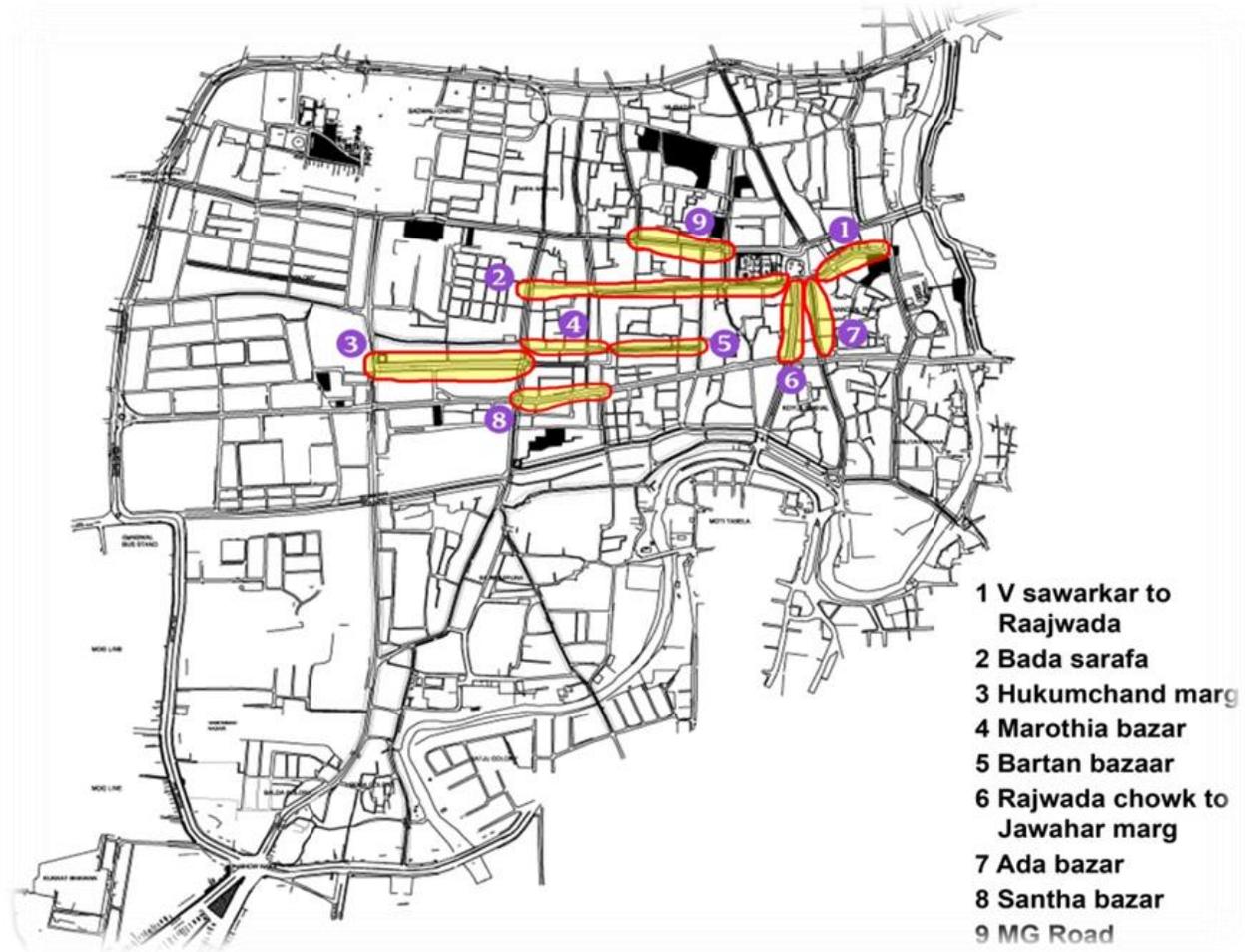


Figure 43: Parking Survey Stretches

The survey was conducted by number-plate method, which involves recording last 4-digits on the number plate of each vehicle on a given stretch at a regular interval. Nine stretches were identified and the observations were recorded separately for each vehicle type. It was found that of all the vehicles parked on the surveyed locations, 2-wheelers form the largest share i.e 83% of total number of vehicles.

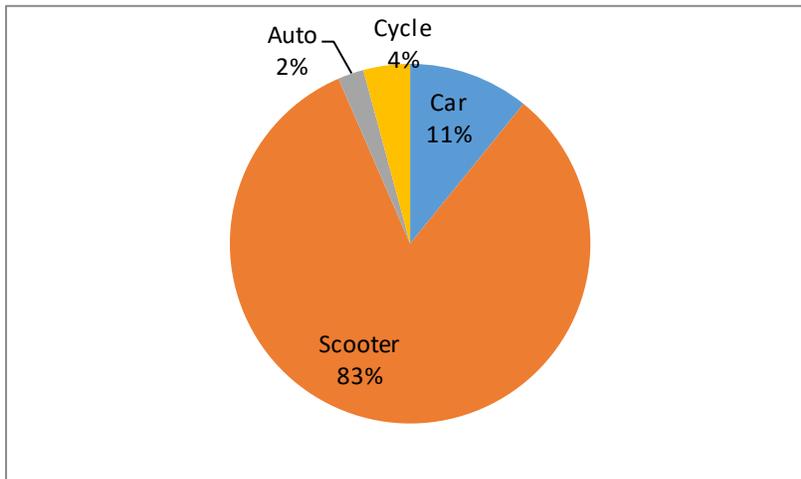


Figure 44: Composition of parked vehicles

Parking volume for the core area of the ABD area is 2757 ECS. This high volume of parking can be attributed to type of activity in the area which is predominantly commercial and mixed use.

Correlation with Surrounding Land Use

Parking demand is heavily influenced by surrounding land use. Each land use attracts and generates different levels of traffic and hence, generates different level of parking demand. Parking demand survey was integrated with land use survey of surrounding plots to calculate parking demand standard for each land use. It was assumed that an area of influence around each parking stretch is around 1-2 plot depth of the parking stretch. Six out of nine stretches have use dominated by a single type and hence these six stretches were considered to calculate the standard. Stretch number 1 and 9 are dominated by commercial use, while stretch number 4 and 5 are dominated by mixed use. Stretch 3 and 7 are dominated by commercial and mixed use if taken together. The following table shows detailed method of calculation of standard.

Table 8: Location Wise Demand Calculation

Parking location	Land use area (sqm)			Parking Volume (ECS)	Ground coverage	Average number of floors	Built up area (sqm)	Parking Demand (ECS per 100 sqm)
	Mixed use dominated	Commercial use dominated	Mix and commercial dominated					
1		7575		213	80%	3	18180	1.171617162
3			24007	718	80%	3	57616.8	1.246164313
4	6121			207	80%	3	14690.4	1.409083483
5	7212			106	80%	3	17308.8	0.612405251
7			8190	229	80%	3	19656	1.165038665
9		15021		240	80%	3	36050.4	0.665734638

Source: Based on Parking Survey and Land Use Survey, 2017

The parking volume mentioned in the above table, is the actual volume in terms of ECS as derived from the parking survey conducted. The table below shows actual number with types of vehicle on the stretches used in calculation.

Table 9: Parking Volume with type of vehicle

Parking Location	Number of Vehicle			
	Car	2 W	Auto	Cycle
1	75	547	2	3
3	237	1807	41	84
4	65	524	14	37
5	39	246	7	21
7	81	568	12	3
9	74	627	16	8

Source: Parking Survey, 2017

Further average of demand considering all the stretches together i.e. 1.05 ECS per 100 sqm may be considered as standard demand with standard deviation of ± 0.33

The standard for residential and PSP use is extrapolated w.r.t URDPFI guidelines.

Table 10: Parking Standards as per abutting Land Use

Land Use	Standard (in ECS per 100 sqm of built up area)
Residential	0.7
Commercial	1.05
PSP	0.7
Mixed use	1.05

Source: Based on Parking Survey and Land Use Survey, 2017

Comparison with Bhumi Vikas Rules 2012

As per Bhumi Vikas Rules 2012, in commercial areas parking should be provided 1 ECS per 75 sqm with additional 50% ECS. Similarly in case of PSP uses parking should be provided 1 ECS per 75 sqm of built up area. The higher side of standard i.e. standard suggested in Bhumi Vikas Rules 2012 is finalized for calculation of parking demand in ABD area (as highlighted in bold in the table below).

Table 11: Standard Formulated for Calculation of Parking Demand in ABD area

Land Use	Standard (in ECS per 100 sqm of built up area)	
	Derived	BVR 2012
Residential	0.70 ECS per 100 sqm	1 ECS per 100 sqm
Commercial	1.05 ECS per 100 sqm	1ECS per 75sqm + 50% extra
PSP	0.70 ECS per 100 sqm	1 ECS per 75 sqm
Mixed use	1.05 ECS per 100 sqm	-

Demand Calculation for ABD Area

Based on the standards formulated in last section, the demand of parking in ABD area is coming out to be 52,034 ECS.

Table 12: Parking Demand in ABD Area

Use	Area (sqm) BUA	Standard (@ BUA)	Demand (ECS)	Demand (Cars) in ECS	Demand (2-wheelers) in ECS	Demand (Cars) in No.	Demand (2-wheelers) in No.
Residential	607907.1	1 ECS per 100 sqm	6079	669	5046	669	20183
Commercial	545038.4	1ECS per 75sqm + 50% extra	10901	1199	9048	1199	36191
Mixed	Commercial (Ground Floor)	1ECS per 75sqm + 50% extra	15523	1707	12884	1707	51535
	Residential (above G Floor)	1 ECS per 100 sqm	13475	1482	11184	1482	44736
PSP	454277.5	1 ECS per 75 sqm	6057	666	5027	666	20109
Total	3730816.6		52034	5724	43188	5724	172753

As per the percentage share of cars and two-wheelers (refer section 4.3.5.4), this translates to existing parking demand for 5,724 cars (5,724 ECS) and 1,72,753 two-wheelers (43,188 ECS).

Demand Calculation for No Vehicle Zone in ABD

Parking demand in no-vehicle zone of ABD is coming out to be 9,632 ECS. A parking for 1,060 cars and 31,980 two wheelers is required to cater the demand of this zone.

Table 13: Parking Demand in No Vehicle Zone

Use	Area (sqm) BUA	Standard (@ BUA)	Dem and (ECS)	Dema nd (Cars) in ECS	Demand (2-wheelers) in ECS	Dema nd (Cars) in No.	Demand (2-wheelers) in No.
Residential	7987.0	1 ECS per 100 sqm	80	9	66	9	265
Commercial	289620.8	1ECS per 75sqm + 50% extra	5792	637	4808	637	19231
Mixed	Commercial (Ground Floor)	1ECS per 75sqm + 50% extra	1944	214	1614	214	6456
	Residential (above G Floor)	1 ECS per 100 sqm	1688	186	1401	186	5604
PSP	9579.3	1 ECS per 75 sqm	128	14	106	14	424
Total	573204.0		9632	1060	7995	1060	31980

Night Parking in No Vehicle Zone

Once the parking demand in no-vehicle zone is calculated, it is a must to analyse parking load in night time in this zone. The zone is densely developed and a significant number of residents are parking their vehicle on roads in the night. In day time the same road stretches are used by the traffic flow due to commercial activities in the area. To find out the number of vehicles parked in night, a survey was conducted early morning from 5:00 am to 8:00 am. The zone was divided three sub-zones A, B & C.

It should be noted that the area serves as a commercial centre/market in the day time, while congestion on road reduces in night. The parking demand calculated for non-motorized zone is capable of handling the demand during night time in this zone.

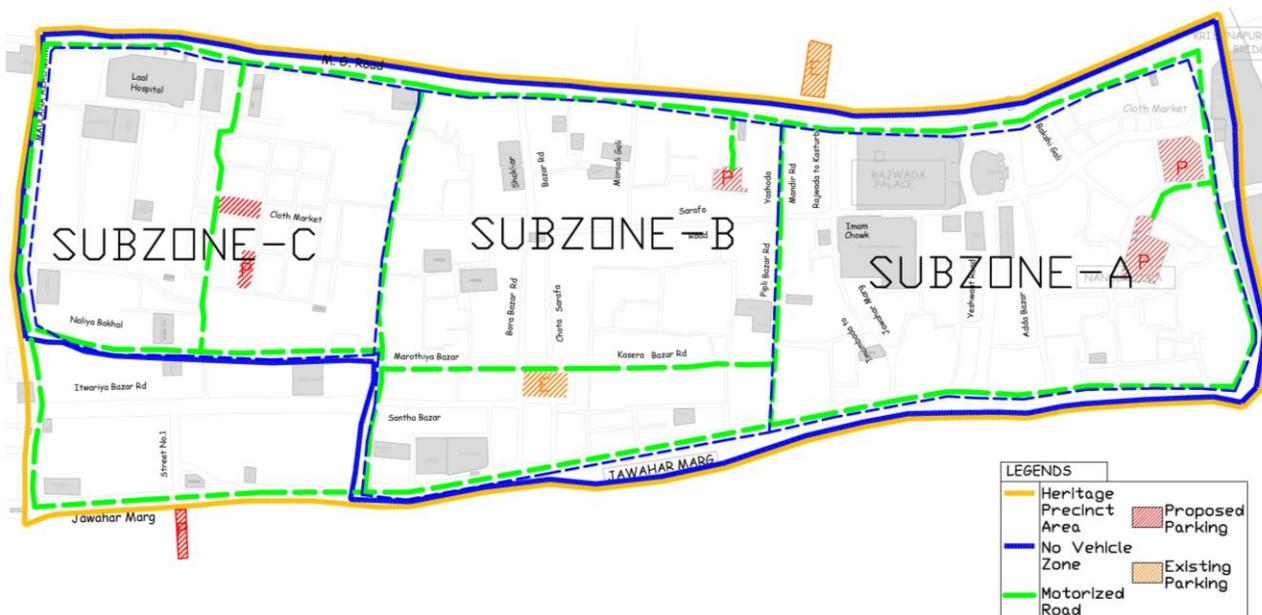


Figure 45: Sub-zoning of No-vehicle Zone

The night time parking load is shown in the table below:

Table 14: Existing number of vehicles parked in Night by the Residents residing in Non-motorized Zone

	Number of Vehicles Parked									
	Motorized Vehicle							Non-motorized Vehicle		
	2W	Auto Rickshaw	Car/Jee p/Van	Tempo	LCV	Mini Bus	Other	Animal/Han d Drawn	Cycle	Other
TOTAL (HPA)	2138	245	364	75	22	1	14	339	247	4
Sub-zone A (Rajwada)	452	144	155	38	14	1	2	195	145	0
Sub-zone B (Sarafa)	1120	85	130	13	4	0	0	42	71	0
Sub-zone C (Cloth Market)	566	16	79	24	4	0	12	102	31	4

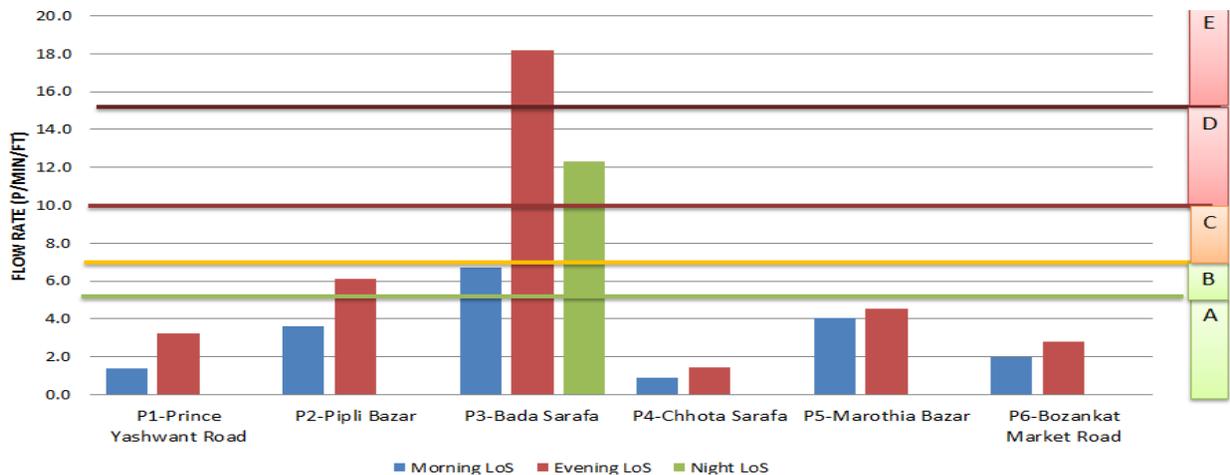
Source: Early Morning Parking Survey by REPL, 2017

The parking demand calculated for non-motorized zone is capable of handling the demand during night time in this zone.

4.3.5.5 Pedestrian Count Survey

Pedestrian count was also conducted to assess the movement and pedestrian behavior in the area proposed as 'No Vehicle Zone' in the SCP. It was found that maximum pedestrian movement is in Bada Sarafa and especially during

evenings. Bada Sarafa is also popular with pedestrians during night time, when it transforms into a Street Food Market. Even though pedestrian volume is generally in Pedestrian LOS A to B, pedestrian facilities are missing on most roads. Pedestrian footpaths, street furniture is almost non-existent in most streets. The figure below shows Pedestrian Flow in persons per minute per feet (p/min/ft) and Pedestrian LoS for each survey location.



Source: Pedestrian Count Survey, 2017

4.3.5.6 Existing Traffic management

In ABD area traffic congestion mostly occur in MG road, Jawahar marg and Rajwada circle which is predominantly commercial and mixed land use. Review of existing traffic management and traffic calming measures within the study area has indicated a number measures that have already been installed in some places.

Some of the management measures adopted includes:

- 2 signalised intersection in study area are found to be operating, located on Jawahar marg and Mau Naka Chowk.
- Traffic measures such as segregation of left turning movements are observed in some major intersections such as Mau Naka Chowk, Bada Ganapati chowk etc effectively reducing the conflict points to large extent in off peak hour.

- Traffic police are deployed on Rajwada signalised intersection and other major intersections in Jawahar Marg.
- One way regulations to cut down the traffic congestion and smooth flow of traffic.



Figure 46 signalized intersection at Gurudwara Square (on left) one way regulation at Nandlalpura sabji mandi road (right side)

- Traffic calming measures such as providing channelization for merging and diverging traffic are provided in some locations namely Mau naka chowk, Bada Ganapti etc.



Figure 47 merging diverging segregation at Mau naka Chowk (Left side), barricades on roads to ensure safety (right side)

Issue identification

Some of the issues are identified based on reconnaissance survey and frequent observations in the study area. Key Issues related to traffic management are listed below:

- No proper management measures adopted to eliminate/divert the through traffic passing through MG road and Jawahar marg resulting in heavy congestion during peak hour.



Figure 48 peak hour heavy traffic on Jawahar marg

- Lack in enforcement measures for traffic violations.
- Most of intersections experience perpendicular conflicts which is much dangerous than angular conflicts.



Figure 49 perpendicular and direct conflicts in major intersections

- Lack in pedestrian infrastructure and crossings and intersections. Essential aspects such as zebra crossings, table tops near intersections, warning



Figure 50 lack in footpath, zebra crossing and no safety measures for pedestrian movement

- signs or speed limit lacks throughout the network.
- Road side encroachments lead to reduce the capacity of network there by resulting into congestion. Proper management and regulative measures lacks in case of illegal encroachment.



Figure 51 illegal roadside encroachment

- No medians or barricades are provided to segregate the two way traffic because of which people are tend to drive in a zig-zag manner which is unsafe and create conflicts.

4.3.5.7 Suggested traffic management measures

- Providing median to segregate two-way traffic will improve the capacity as well as the driving behavior. More than 30% of the theoretical capacity for the existing network are under-utilized as cause of undivided-carriage way and illegal encroachments.
- Congestion on MG road and jawahar marg can be reduced once the proposed widening of Dhar road is implemented.
- As a part of short term measure, to protect pedestrians from the high speed vehicular traffic at the intersection, a traffic calming measure of provision of curb ramps has been suggested. This will limit vehicular right of way as well as the speed while giving pedestrians a refuge island at the intersection.
- Proper signage to be put up near the heavy pedestrian movement areas such as schools, hospitals, bus stops and intersections.
- In order to avoid the perpendicular conflicts, mini roundabouts are necessary on intersections to ensure safety as well as reducing the overall conflicts.
- Footpath to be designed as Table top before intersections, which needs to be provided to reduce the vehicular speed at the intersection.

4.3.6 Social Infrastructure

Around 41 ha of land is under public and semi-public use of land in ABD area. The table below highlights the area under various subcategories of public and semi-public use of land. Although area requirement under various social facilities have been calculated, the area under consideration is too congested and there is almost no land available for new development. In such a situation of brown field development, where we have to retrofit the requirement of infrastructure, we have to go for change in development control regulations to fit the area requirement. We may also go for multi-use of same space for different activities.

4.3.6.1 Educational Facilities

Around 21.8 ha of land is under educational facilities in ABD area, which comes out to be 55.26% of area under public and semi-public use. As per the standards of Indore Development Plan 2021, educational facilities are categorized in five types. These types do not include middle school, while at present the terminology by department of education includes it. The existing standardization defines a primary school with classes ranging from 1 to 5; while the class range in a middle school is from 6 to 8.

Table 15: Existing Requirement of Educational Facilities in ABD Area

A	Educational Facilities	Standard (@ Indore Development Plan 2021)	Pop./unit	Required	Existing	GAP
1	Pre-Primary/Play/Nursery School*	1 for 2500-3000 Population	3000	40	4	36
2	Primary School	1 for 3000-4000 Population	4000	30	39	(9)
3	Middle School				33	
4	Higher Secondary School	1 for 7500-10000 Population	10000	12	14	(2)
5	School for Physically Challenged	1 for 45000 Population	45000	3	1	2
6	College	1 for 0.8-1 lakh Population	100000	1	1	0

*Private sector business

Source: Indore Development Plan 2021; Primary Survey by REPL; Data collection by ISCDL

4.3.6.2 Healthcare Facilities

Around 3.2 ha of land is under healthcare facilities in ABD area, which comes out to be 7.74% of area under public and semi-public use. It is to be noted that the facilities highlighted in bold (physiotherapy centre, blood bank, pathology, pet clinic, nursing home and naturopathy centre) belongs to private sector business and hence land/space need not to be reserved for such facilities. The condition of this sector is acceptable based on future demand expect requirement of polyclinics.

Table 16: Existing Requirement of Healthcare Facilities in ABD Area

B	Healthcare Facilities	Standard	Pop./unit†	Required	Existing	GAP
1	Physiotherapy Centre*	1 for 0.25 Lakh Population	25000	5	-	5
2	Blood Bank/ Pathology Centre*	1 for 0.25 Lakh Population	25000	5	-	5
3	Pet Clinic*	1 for 0.25 Lakh Population	25000	5	-	5
4	Health Centre	1 for 0.5 lakh Population	50000	2	4	(2)
5	Nursing Home*	1 for 0.5 lakh Population	50000	2	4	(2)
6	Polyclinic	1 for 0.5 lakh Population	50000	2	-	2
7	Hospital (0-30 beds)	1 for 0.5 lakh Population	50000	2	2	0
8	Hospital (30-100 beds)	1 for 1 lakh Population	100000	1	6	(5)
9	Hospital (100 + Beds)	1 for 1 lakh Population	100000	1	2	(1)
10	Naturopathy Centre*	1 for 1 lakh Population	100000	1	-	1

*Private sector business

Source: Indore Development Plan 2021; Primary Survey by REPL

4.3.6.3 Socio-cultural Facilities

There is a remarkable gap in provision of socio-cultural facilities as shown in the table below. This sector needs attention, while planning for retrofitting/ redevelopment of ABD.

Table 17: Existing Requirement of Socio-cultural Facilities in ABD Area

C	Socio-Cultural Facilities	Standard	Pop./unit	Required	Existing	GAP
1	Religious Building*	1 for 5000 Population	5000	24	77	(53)
2	Community Centre & Library	1 for 10000 Population	10000	12	1	11
3	Conference Hall	1 for 0.5 lakh Population	50000	2	-	2

4	Club	1 for 0.5 lakh Population	50000	2	-	2
5	Religious/ spiritual centre*	1 for 1-3 lakh population	150000	1	-	1

*Private sector facilities

Source: Indore Development Plan 2021; Primary Survey by REPL

4.3.6.4 Public Safety

The condition of public safety facilities are acceptable in the study area.

Table 18: Existing Requirement of Facilities for Public Safety in ABD Area

D	Public Safety	Standard	Pop./unit	Required	Existing	GAP
1	Police Chowki	1 for 40000-50000 population	50000	2	1	1
2	Police Station	1 for 0.75-0.90 population	90000	1	2	(1)

Source: Indore Development Plan 2021; Primary Survey by REPL

Although Indore Development Plan 2021 suggests a fire fighting center for 10 lakh population, looking into the character of ABD a sub-fire station/ fire post should be established in the area. At present the nearest fire stations are located at Gandhi Hall and near Collectorate.

ABD being the city core and densely developed, a disaster management center is also required to be established. It may be a complex with fire post, disaster management training center, etc.

4.3.6.5 Other Facilities

The gap of taxi and auto stands and electric substation as per the standards of Indore Development Plan 2021 needs to be looked into.

Table 19: Existing Requirement of Other Facilities in ABD Area

E	Other Facilities	Standard	Pop./unit	Required	Existing	GAP
1	Milk Distribution Centre*	1 for 5000 population	5000	24	4	20
2	LPG Godown*	1 for 4000-5000 population	5000	24	-	24
3	Taxi and Auto Stand	1 for 15000 population	15000	8	3	5
4	Cremation Ground/ Burial Ground	1 for 1.5 - 2 lakh population	200000	1	2	(1)
5	Electric substation (66 kW)	1 for 1 lakh population	100000	1	1	0
6	Electric substation (11kW)	1 for 7500-10000 population	10000	12	1	11

*Private sector facilities

Source: *Indore Development Plan 2021; Primary Survey by REPL*

Future Consideration

The existing as well as future gap is considered while detailing out the proposals under various components of planning viz. Transport Network plan, Utilities and Facilities plan, etc. As the ABD area is already congested, the future requirement of area is to be justified through multi-usage of space, increasing FAR or such considerations.

CHAPTER 5: PROPOSED LAND USE

The ABD area, though deteriorating in some areas has potential to be rejuvenated. With its location in the heart of the city, both physically and culturally, a rejuvenated ABD area will enhance the image of the city for both, residents and tourists. With this aim of enhancing the connection of the old city with its residents and overall rejuvenation, strategies are being proposed as part of this Master Plan.

5.1 Vision

Vision of Smart City Proposal submitted for Smart City Mission for Indore emphasizes on enhancing identity of the city, spatial re-structuring of urban forms, investment opportunities, sustainable urban mobility and infrastructure and enhancing the quality of urban workforce to ensure inclusive development. Building on the Smart City Vision for the whole city, the following vision is foreseen for the ABD area. It is stressed that the ABD area is different from the rest of the city, in various aspects.

“TO RE-ENERGIZE THE HISTORIC, CULTURAL AND ECONOMIC CENTER OF INDORE, SURROUNDING RAJWADA, WITH SMART INFRASTRUCTURE, MIX OF ACTIVITIES, IMPROVED TRANSIT NETWORK AND RE-STRUCTURING OF BUILT FORMS TO ECONOMICALLY EMPOWER THE RESIDENTS AS WELL AS CREATE A VIBRANT EXPERIENCE FOR PEOPLE MOVING THROUGH THE AREA”

This vision includes both residents as well as the people moving through the area with an aim to ease the mobility in the area with transit network as well as smart infrastructure. Creating economic opportunities in the area will help the residents to raise their standard of living and will create a positive feedback loop towards improving the built environment in the area. Overall improvement in the area shall enhance the image of the area and make the residents of the city more aware of its rich built as well as cultural heritage.

5.2 Proposed Development Policy

The ABD area has potential for densification and requires economic rejuvenation. This section details the vision for the ABD area and incorporates potentials and issues identified in the preceding sections.

5.2.1 Movement Pattern

One of the major concerns identified in the preceding section relates to traffic congestion and parking problem. Most of the roads are overburdened due to traffic but also decrease in effective right of way due to haphazard on-street parking. To address these issues as well as make way for introducing smart mobility in the area, a new movement pattern is proposed. This proposal also takes into account proposed road widths in the Indore Development Plan – 2021. However, proposed road widths have been modified at some places as per the traffic analysis and projections.

Road Network

The ABD area is well connected by MG Road, Jawahar Marg, Netaji Subhash Marg and Biyabani Road with surrounding areas. It is proposed to ease traffic from Jawahar Marg, as it shows the highest volume count among all roads in the ABD area. In place of Jawahar Marg, Gangwal-Chandrabhaga road, which at present varies from 10 m to 12 m, is proposed to be developed as an artery. In Indore Development Plan -2021, Gangwal-Chandrabhaga is proposed as a 24 m ROW road. It connects the two main roads – 30 m wide Netaji Subhash Marg at Gangwal bus stand and 24 m wide road proposed on the opposite bank of the River Saraswati through Chandrabhaga Bridge as shown in figure below. At present this road runs through residential areas showcasing mix of uses as well as slum-like conditions for most of the stretch. Widening of this road shall bring about a change in its character.

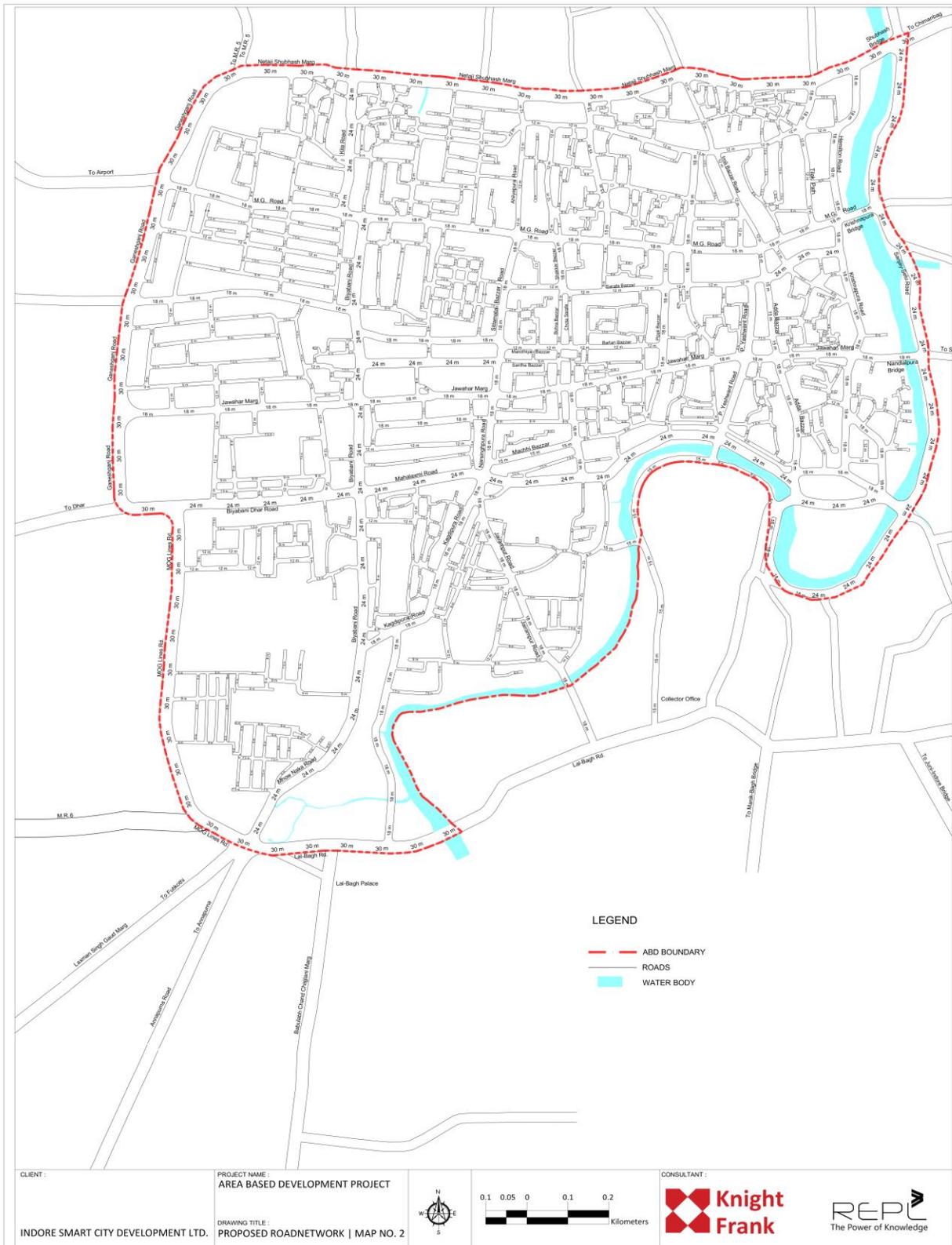


Figure 52 Proposed Road Network Map

The movement concept for ABD area involves a ring road acting as the boundary of the ABD area and few streets running through the area horizontally and vertically. Part of this ring is covered by the (proposed) 30 m RoW Netaji Subhash Marg and MOG lines road, while the rest of the ring is proposed to be covered by 24m RoW road proposed along the river just outside the ABD boundary. Two roads – MG Road (proposed 18 m RoW) and Gangwal-Chandrabhaga road (proposed 24 m RoW) shall act as primary horizontal corridors traversing through the area. Biyabani Road (24 m RoW) and Shitla Mata Mandir Road (proposed 18 m RoW) shall act as primary vertical connections across the site. It is to be noted that Jawahar Marg runs almost parallel to both MG road and Gangwal-Chandrabhaga Road, but it is not being designated as a primary link so as to ease the existing volume of traffic. These important traffic arteries traversing the area are shown in the figure below. To distribute the traffic load from these primary arteries in the ABD area, few streets are designated as secondary links. These connect two primary or important roads to streamline traffic flow. Some of these streets are – Imli Bazar Road, P.Y Road, Ada Bazar, Kailash Marg and Nandlalpura Road.

Smart city proposal, along with proposing vehicular streets, also proposes few pedestrian-only streets. These pedestrian-only streets have been designated in the 'Heritage Precinct' area only. 'Heritage Precinct Area' is the area around Rajwada having historical importance. A significant number of historical buildings need to be conserved in this area. Also the level of congestion is too high in this area. It should be noted that within this Heritage Precinct Area, no-vehicle zone is identified. The figure below shows no-vehicle zone and access road to existing and proposed parking where vehicular movement will be allowed only for parking purpose.

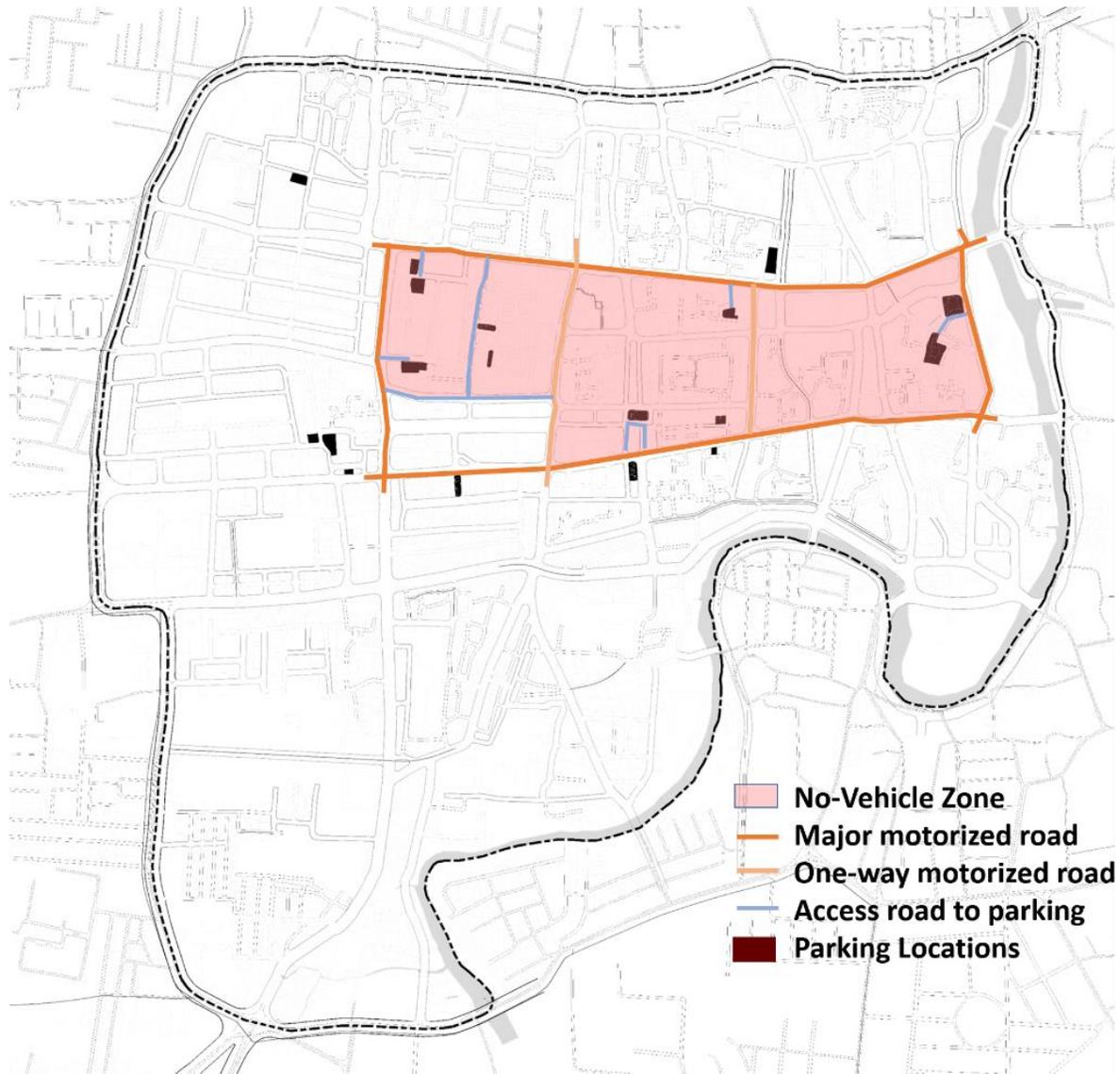


Figure 53 No-Vehicle Zone in ABD

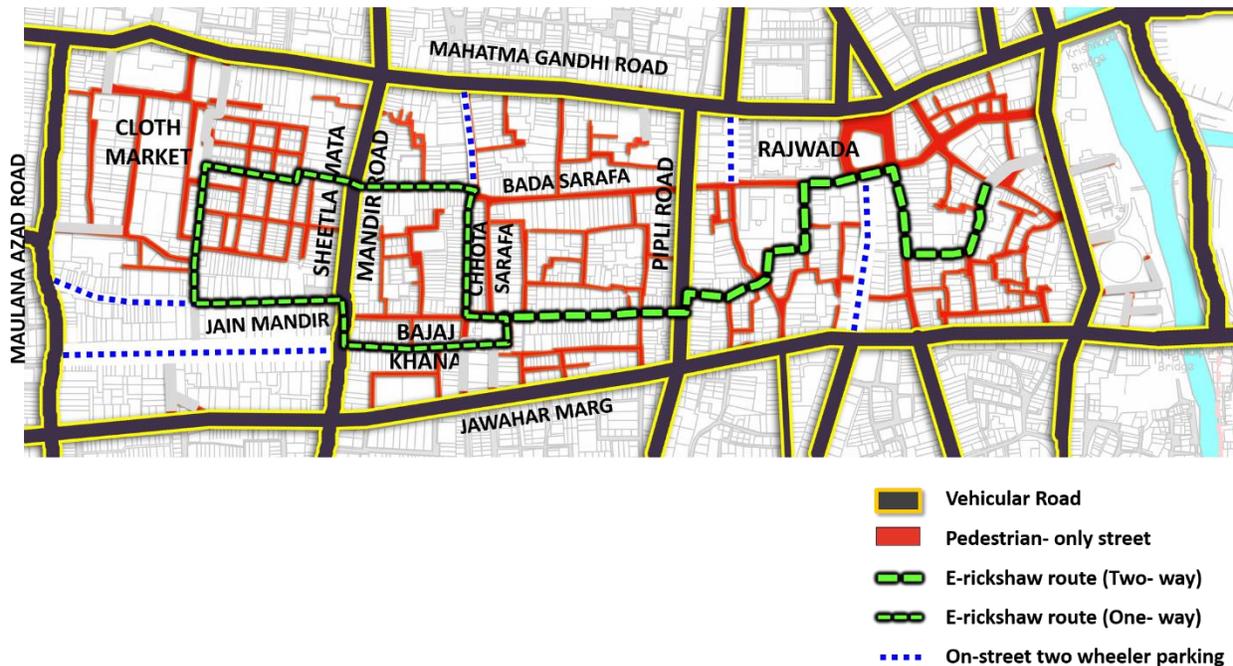


Figure 54: Pedestrian streets in Heritage Precinct Area

In heritage precinct area five streets have been identified for on-street parking. These streets are: Itwaria Bazar road, Naliya Bakhhal road, Shakkar bazar road, Prince Yashwant road and Road behind Rajwada (from Imam Bada to MG road). Sheetala Mata road and Pipli Bazar road should allow one-way vehicular movement between Jawahar marg and MG road. All other streets i.e. except Sheetala Mata mandir road, Pipli Bazar road, access road to parking (off-street and on-street) and smart vehicle route are pedestrian-only streets.

With the proposal of expansive green area in front of Rajwada, Bozankat market plays an important role of visually connecting Krishnapura Chhatri and Rajwada.

Bozankat market road opens up into the Rajwada Plaza, which is proposed as the core of the public open space. After Rajwada Plaza, it is connected to the Bada Sarafa with Rajwada on one side and Gopal Mandir on the other. At present a police chowki is located at the site, which is proposed to be shifted to the proposed Smart Police Station at the end of Bada Sarafa.

Bada Sarafa is one of the most famous streets in Indore and consists of shops dealing primarily in gold and silver jewelry on both sides. Some of the buildings also have residences on upper floors. Chhota sarafa which connect Bada

Sarafa to Bajaj Khana chowk also exhibit similar characteristics, except that it has smaller shops as compared to Bada Sarafa. These markets are mainly famous for their change in character during the course of the day. During day time and well into the evening, Bada Sarafa and Chhota Sarafa function as an ordinary jewelers' market. However, by night time, both the streets transform into 'Food streets' serving a range of snacks and desserts. This 'Night Market' begins around 9-10 pm when the jewelers close their shops. These street food vendors then set up stalls on the street. This food market functions well past midnight, around 2-3 am. The market experiences high footfall of around 600 persons per hour as per pedestrian count survey conducted in the night sarafa market.

Hence a continuous pedestrian movement is proposed, beginning from Krishnapura Chhatri and ending at Bajaj Khana. It is, however, punctured by vehicular street at beginning of Bada Sarafa. It is proposed that this continuous precinct shall have façade controls along the way, so as to improve the visual character of the area. Bada sarafa is proposed to be upgraded with widened road width, street furniture, façade control, road surface improvement and landscaping.

Smart Mobility

To ease movement in the heritage precinct and to integrate it with smart city features, a smart vehicle route (e-rickshaw) is proposed. It begins from Bakshi gali (adjacent to the proposed parking) and covers the entire Heritage Precinct Area with designated drop-off points. The route of the e-rickshaw is shown in the previous figure shown above. The proposed length of e-rickshaw route is 2.15 km.

Parking

To overcome parking shortage in the area, parking locations are proposed interspersed within the ABD area, but focusing on the heritage precinct, which is proposed to generate and attract maximum vehicular traffic. In the figure above highlighting pedestrian only streets, access road is to be proposed to

connect proposed parking sites. These sites are: bazazkhana (existing), khajuri bazar, veer sawarkar market, bakshi gali and cloth market.

5.2.2 Riverside Green

An important component of Rajwada Rejuvenation, as proposed in the SCP, is the rejuvenation of River Khan. This proposed rejuvenation of the river is being taken up as a fast-track project of Riverfront Development, which includes development of ghats, development of recreational and public space along both sides of the river, development of green buffer, channelization of river and installing DEWATS for sewage treatment. Detailing these proposals of the SCP, a buffer of 30 m along the river is earmarked as a green space with public open spaces. Along with a uniform green buffer along the river, projections of green spaces are proposed from this green buffer so as to create a system of greens piercing dense built up area of the old city.

Most prominent green projection from the buffer, connects Krishnapura Chhatri to Rajwada Palace. This connection between Rajwada and Krishnapura Chhatri is enhanced as a focused area within the ABD area. This green space is proposed to have public open space with open-air exhibition spaces, play area, butterfly garden and specialized horticulture area. To establish contiguity between Krishnapura Chhatri and Rajwada plaza, a pedestrian underground walkway is proposed. This shall be integrated with the movement pattern proposed in the preceding section.

Another extension of the green buffer is proposed as a 'city-level green' in the form of Harsiddhi Park. It is proposed to include an amphitheater and gardens. The system of greens continues beyond the ABD area in the form of greens part of the Lal Bagh complex.

5.2.3 Commercial Area

ABD area includes some of the oldest commercial area in Indore. As observed in the existing land use map, area bounded by MG road, Maulana Azad road, Jawahar Marg and River Kahn displays high intensity of commercial use of land. This however, doesn't rule out presence of other non-commercial uses in the

area. Commercial use has grown northwards towards Netaji Subhash Marg especially along Imli Bazar Road.

Keeping in view the special characteristics of the 'heritage precinct', it is proposed that this area bounded by MG Road, Maulana Azad Road, Jawahar Marg and River Kahn be proposed as a commercial area, with commercial use allowed on the roads emanating from this area. Commercial use along all the major roads shall be permissible upto a depth of 1 plot or 30 m, whichever is higher. This is to ensure maintaining of existing special character of the ABD area. Apart from these commercial areas, a new commercial space is proposed at the site of Old SP Office. Presently this site is empty, with dilapidated Police Housing forming its northern boundary and dilapidated Kasturba Kanya Higher Secondary School forming its eastern boundary. This site is accessible from Imli Bazar Road and is proposed to be developed as a retail commercial centre, consisting of ample parking provisions. Informal shops proposed to be shifted from the heritage precinct shall be provided plots at this site.

Following are the list of streets with commercial use allowed on both sides upto 1-plot depth or 20 m, whichever is higher.

Informal Sector

Like older parts of other cities, ABD area also consists of informal commercial activities. This informal sector often forms an integral part of the urban fabric and gives a sense of identity to the ABD area. It is proposed that Right of Way shall be re-designed to integrate informal sector with the proposed movement plan, so that it doesn't worsen traffic flow of vehicles as well as pedestrians. However, informal street vendors operating at certain locations like between Rajwada and Gopal Mandir and behind Gopal Mandir shall be relocated to the proposed retail commercial center at the site of Old SP Office.

5.2.4 Residential Area

As the ABD area characteristically predominantly has a mix of uses, purely residential areas are few. Most of the residential areas have commercial uses mixed within. It is proposed that some areas shall be purely residential areas.

However, these purely residential areas will have commercial use on the periphery. These purely residential areas with commercial periphery area proposed at Raj Mohalla, Bhakt Prahlad Nagar, Vardhman Nagar, Lodhipura and Chhatribagh.

5.2.5 Mixed Use

To cater to the special characteristic of the heritage precinct, a new use is proposed in the ABD Master Plan. Along with compactness of development, mixed use development also discourages longer commuting. With proposed metro route along MG Road, the ABD area is expected to be easily accessible by Public Transport and will lead to further intensification of commercial use in the area. To cater to this expected commercialization of the ABD area, mixed use provisions are proposed. Mixed use is defined as presence of permitted non-residential use in residential areas. These permitted non-residential uses can be of the following three types :

- Commercial activity (retail shops only)
- PSP activity (schools, dispensary etc.)
- Professional activity (of doctors, architects, planners, lawyers and engineers)

All other non-residential uses, apart from the above list, shall not be permitted in residential areas earmarked as 'Mixed Use'. It is also proposed that owners of residential properties can change upto 60% of the built area to permitted non-residential use in exchange of specified fees.

5.2.6 Public Semi-Public Use

ABD area is interspersed with PSP sites. However, many of these PSP locations are various dharamshalas occupying large areas. It is proposed that existing PSP shall be retained. However, two new locations for PSP are proposed. First is the abutting area of the Shiv Vilas palace. It is proposed that most of the original plot boundary of Shiv Vilas Palace, as shown in the figure below, shall be reestablished. This proposal is also covered in the Indore Master. Surroundings

buildings of the palace are to be developed as green area so as to enhance the visual connectivity of the palace with Rajwada, which was present earlier. Shiv Vilas Palace is proposed to be renovated along with adaptive re-use of the building. Instead of the existing hospital in the building, it is proposed that the building shall be re-used as an art college with exhibition gallery. This will create an optimum environment for enhancing the cultural value of not only Shiv Vilas palace but the heritage precinct as well.

Another PSP site is proposed adjacent to Jawahar Marg. This site is proposed to be developed as a community level facility like Exhibition-cum cultural centre. As the location abuts the proposed riverfront development with good connectivity via Jawahar Marg, it will be an ideal location to host workshops and conferences.

Shared Open Spaces

To increase accessibility to green spaces from dense residential areas, it is proposed that grounds of big schools shall be open to public after school hours. These schools, situated amidst residential areas offer opportunity of efficient use of space. Following is the list of schools and area proposed to be converted to Shared Open Space.

SN	Name of School	Area proposed as Shared Open Space (sqm)
1.	Govt. Subhash Higher Secondary School	16,495.95 sqm
2.	Saifee School	
3.	Shri RK Daga Maheshwari Academy	
4.	Trilokchand Jain HS School	
5.	Sarafa Vidya Niketan	

Figure 55: Schools identified for Shared Open Space

5.2.7 Facilities and Utilities

Facilities and Utilities is another additional land use which was not present in the Indore Master Plan. It covers spaces allocated to generation, distribution, storage and collection of physical infrastructure including water, sewerage, power and solid waste management. In addition to these, this land use also covers social infrastructure facility like cremation areas and kabristan. Activities under this land use do not require intensive development and serve as a support

for residential and commercial land uses. Distribution of Facilities and Utilities land use is shown in the map 1.

5.2.8 Transit Oriented development

Transit oriented development is defined as moderate to high, pedestrian-friendly, mixed- use development containing major transit stops within walking distance. Placing of commercial, housing, offices, parks, and civic uses within walking distance of transit Stations and Corridors.

TOD can be new construction or redevelopment of an area which encourage transit use. Major goals of TOD are:

- Organize Growth and Development on a regional level to be compact and transit- supportive.
- Enhance Ridership along the all transit corridors
- Reduced incentive to sprawl, increased incentive for compact development on and along transit Stations and Corridors
- Create pedestrian- friendly street networks which directly connect local destinations.
- Raise additional resources for economic development on the corridor due to generation of “activity centers” around the station/ stop area.
- TOD should provide a wide range of supporting benefits for local communities, including increased uses and services, a variety of housing, increased transportation options, and a more walkable environment and community amenities through consultation with them.

Guidelines for Transit Oriented Development

As per the Government of MP

Zoning Regulations for Transit oriented development.

- TOD Areas proposed in the Smart city planPlan are

- Transit Station Area-500 m radius of the Proposed BRT Transfer Stations.
- Transit Corridor BRT Corridor Area-150m on either side of the BRT corridor.

Incentives of the TOD Areas will not be applicable on use zones such as Recreational, PSP and PUF, Urban Heritage and its Influence Areas and Water Bodies. TOD Areas are proposed to be notified as TDR receiving areas as per the TDR Guidelines of the GOMP. A redevelopment Proposal need to be developed and submitted for Layout Approval as per the Redevelopment Regulations. All the Guidelines of Residential and Commercial Redevelopment are applicable to TOD Area Redevelopment.

5.2.9 Redevelopment of Land

A detailed area level reconnaissance survey is carried out to delineate the actual boundary of redevelopment sites. Some of the development works have already started at two of these sites and hence the remaining 10 sites were covered in the survey. The table and figure below shows the name and location of these redevelopment sites.

Table 20 Name & Location of Redevelopment sites

Site No.	Locality Name	Site Area (Sq.M.)	Remarks
1	Jinsi Haat	24070	
2	Badwali Chowki	33862	
3	Gafoor Khan ki Bajariya	28895	
4	MT Cloth market, Lal Hospital	23620	
5	Sanskrit School	10508	
6	Ranipura	27616	
7	Kadaw Ghat, Machhi Bazar	72813	

8	Kagdipura	35513	
9	Khayaliram Ka Bagicha, Biyabani (near Tilokchand Jain HS School)	8051	
10	Balda Colony (near Taran Pushkar)	68990	
11	Lodha Colony	-	DPR prepared & project under implementation
12	MoG Line	-	DPR prepared & project under implementation
TOTAL		309868	

A Redevelopment Strategy for accommodating more population in a planned manner is to be taken up on priority for efficient and optimum utilization of existing urban land. Detailed site wise proposal for all these 10 sites need to be prepared on priority basis. Site wise feasibility study and revenue modeling needs to be done. Based on revenue model, decisions need to be taken whether these parcels are to be given individually to the developers or single developer to be given the entire stretches.

In the ABD area a large number of housing, commercial are old and characterized by poor structural condition, sub-optimal utilization of land, congestion, poor urban form, inadequate infrastructure services, lack of community facilities etc. These are to be redeveloped as per the norms and development controls and with the initiative/ consultation with the residents society/ RWA/traders association.

There is a large proportion of underused land with a number of vacant sites as well as dilapidated built-up areas lying vacant in the ABD Area. Many of such areas are owned by government of MP. Such areas are recommended to be planned for redevelopment with higher density in order to make optimum use of land resource as per the Regulations mentioned in the Chapter 8.

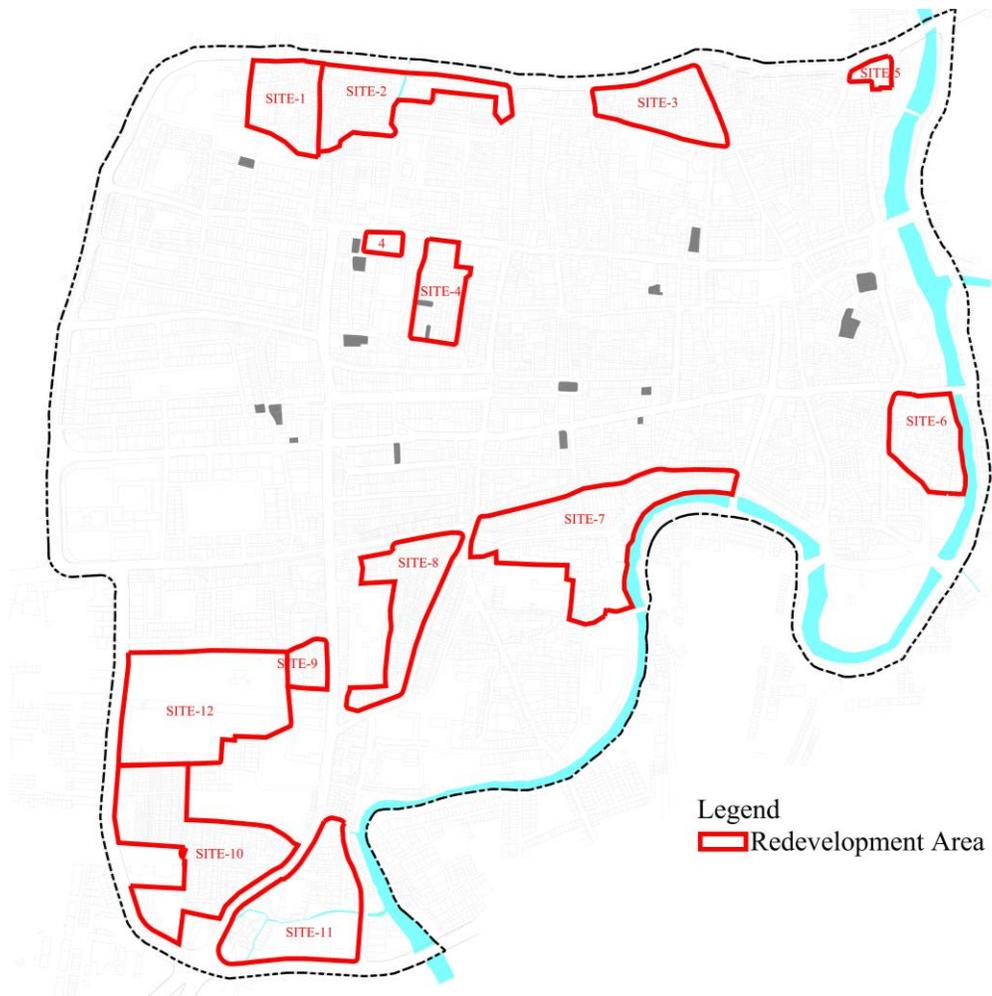


Figure 56 Sites identified for Redevelopment

Redevelopment Area Land Use

The layout plan of the area is obsolete in design and in the redevelopment the area will be re-planned and fresh layout approval will be taken. The proposed land use map shows uses even for the parcels under redevelopment. It should be noted that this is representative in nature (only for the patches under redevelopment) and may be changed as per site specific considerations.

*Note: Redevelopment is not Reconstruction of Plots on approved Layout or amalgamation of plots of approved layout.

It is proposed that these sites shall be redeveloped on PPP basis and are proposed to be redeveloped as per most feasible option to be prepared by the ABD consultant.

It is also proposed that these redevelopment projects shall accommodate parking for traffic attracted and generated by these sites within the site itself, so as to reduce pressure on existing and proposed parking areas. Provision of civic amenities and facilities are to be considered as integral part of the proposal.

5.3 Proposed Land-Use Zoning

The Proposed land use Zoning have therefore been classified into following Land use categories:

- a) Residential
- b) Residential-Commercial
- c) Commercial
- d) Urban Heritage
- e) Public-Semipublic & Public Utility-Facility.
- f) Transportation
- g) Recreational
- h) Water body

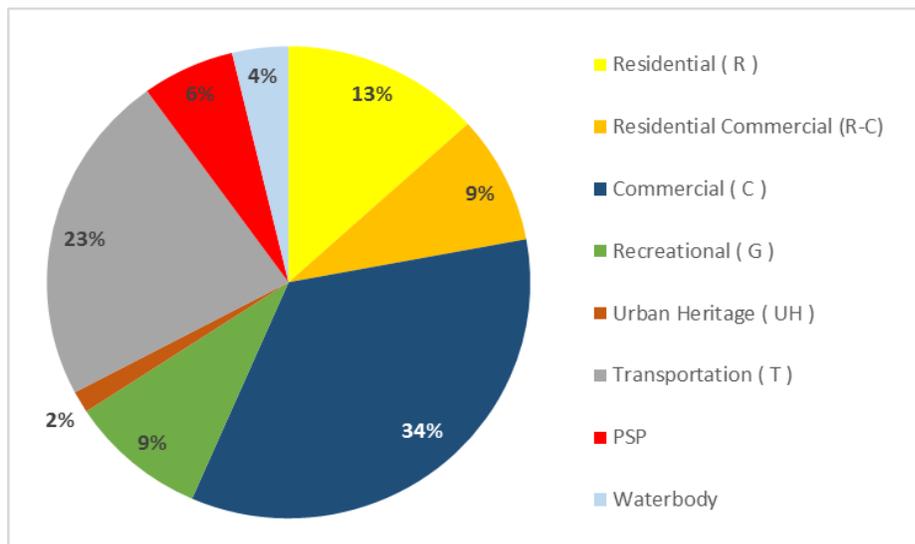


Figure 57 Proposed Land use Area Share

Table 21 Proposed Land use area distribution

Area Statement			
Land Use	Area (Sqmt)	Area(Acre)	Percentage
Residential (R)	377570.72	93.30	13.29%
Residential Commercial (R-C)	249586.01	61.67	8.79%
Commercial (C)	979200.69	241.97	34.47%
Recreational (G)	262609.92	64.89	9.24%
Urban Heritage (UH)	42471.07	10.49	1.49%
Transportation (T)	646526.55	159.76	22.76%
PSP	175897.71	43.47	6.19%
Waterbody	107062.56	26.46	3.77%
Total	2840925.23	702.01	100%

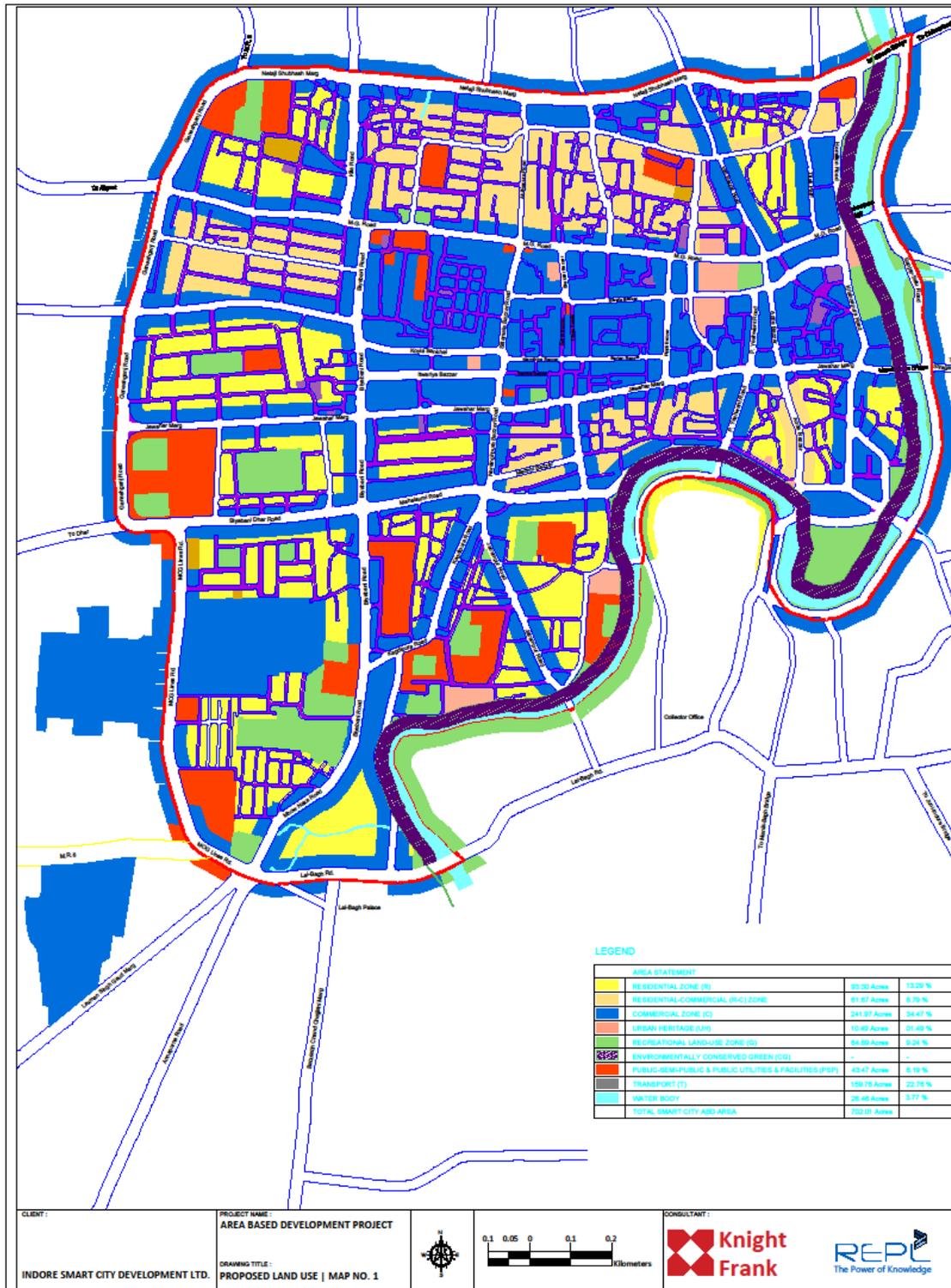


Figure 58 Proposed Land-use Map

5.4 Conclusion

The ABD area has been proposed as a well-functioning smart area, which can be emulated by other parts of the city. The proposed land use distribution in the area is such as to enhance the efficiency of land in the ABD area without compromising on the economic opportunity and facilities for the resident population as well as the environment. Details of the proposed activities under each land use are discussed in the chapter of development control regulations.

CHAPTER 6: URBAN DESIGN GUIDELINES

The urban design guidelines is prepared for the core area (Heritage Precinct) of ABD. It covers Rajwada Area, Sarafa Bazar, Krishna Pura Chattri etc. areas. It predominantly comprises of commercial / retail uses, supported by complementary functions such as residential uses. Core City Area is today a vibrant destination that offers various types of wholesale and retail shopping options and traditional city living.

These guidelines aim to guide the physical development of the area to ensure that individual buildings contribute to, and strengthen the planning vision for the area and create an attractive and pedestrian friendly physical environment.



Archaeological Survey of India (ASI) Notified Monuments and conserved buildings are subject to specific conservation guidelines as notified by ASI and Directorate of Archaeology, M.P., which will take precedence over the guidelines below.



6.1 Goals

The vision for the area focuses on enhancing the area as Retail and Cultural precinct while preserving and building on the built form and character of the cultural heritage of the area including:

6.1.1 Retaining Existing Mix of Uses and Businesses

To ensure the area retains its character, it's important to retain tangible and intangible heritage. Old Businesses and shops which have been in the precinct define character of the area, such business need to be retained. Such shops such as Joshi's Dahi Wada / other such old shops define retail character of the area.

6.1.2 Connectivity

To extend the street network through a series of improved streets, sidewalks, walkways and driveways to service and address new development, and provide safe, comfortable connections between uses, minimizing the traffic impacts on surrounding residential areas.

6.1.3 Pedestrian Realm

To develop a common language for streetscaping, enhance connections to the open space network and generally provide safe, comfortable connections between uses

6.1.4 Attractive and Vibrant Streetscape

To create a safe high quality public realm, utilizing facades that enliven the street, thus making walking more interesting. Sensitive design of the building



forms and scale is important to complement and reinforce the greenery, civic and heritage characters of the area. Barrier free and visually appealing streetscape should be provided in the core of ABD.

6.1.5 A Pedestrian-Friendly District

Core City Area will be a Pedestrian Friendly District with connectivity between major nodes within the development and the Public Transport Hubs via a comprehensive network of Vehicle Free Streets and designated Pedestrian Links free of an encumbrance will ensure a walkable district. Planned larger-scale developments/Redevelopment, will have to ensure permeability at the ground level to allow pedestrians to walk through the buildings / connecting streets.

Connectivity of pedestrian walkways should be ensured along with their linkage to the public open spaces

6.1.6 Unique Features

To take advantage of the opportunities created by the diversity and the cultural heritage of the area.

6.1.7 Distinct District

To create a branded image for the area using easily recognizable and unique elements to the district, such as wayfinding signage, advertising and corporate

signage. Gateway entrances / Precinct Marker would be located at Primary Entrance Points to ABD Area like near KrishnaPura Chhatri, Gopal Mandir etc. Gateway entrances / Markers represent significant opportunities to mark entry into the Core Area of ABD.



A gateway may be implemented through a streetscape element, such as a sign, or reinforced by an appropriate architectural expression; and Potential open/green spaces, views and special places.

6.1.8 Environmentally Sustainable Development

To develop a strong, sustainable district that encourages new development while minimizing resources and respecting the natural environment.

6.1.9 Economically Viable Development

To balance the cost of area improvements, such as streetscaping, with improved Market Rent in the area and increased collection of Property Tax. Simultaneously, redevelopment parcels will help increase overall revenue collection.

6.2 Urban Design Guidelines

6.2.1 Positioning & Land Use

The Core City Area has traditionally been trading / cultural hub of Indore City and one of aims of the Smart City Initiative is to reposition this zone as heart of the City. Retail/Cultural hub along with 'green lung' of River Front Development aims to reinforce the same. The Core Planning Area consists of mix of uses and building types, offering commercial, residential, arts and cultural. Large scale commercial / mixed-use developments are being proposed around Transit Hubs / Primary Roads formulating Transit Oriented Development, while smaller scale Retail / Community spaces (some which are heritage buildings) are predominantly located in and around Rajwada Area / other designated areas as marked in MasterPlan.

The Core City currently serves as Wholesale & Retail Market. The Master Plan Guidelines aims to reinforce position of Core City as Indore's Commercial and Cultural hub. To enliven the Core Area round the clock complementary supporting uses (e.g. hotel and residential) will be provided at the fringe areas.

Developments within the Core Area are required to provide a minimum quantum of Retail use at Street level to realize the planning intention for a retail and business precinct.

Existing & New Developments (Small / Large Scale) will have to ensure boundary wall free development with building being accessed directly from Street to frame Street Character.

6.2.2 Public Realm

The following recommendations for the public realm are made to improve the appearance and functionality of the Historic Precinct of ABD Area and better serve the needs of vehicles and pedestrians including local residents, consumers, business/shop owners and tourists. Improving the public realm for pedestrians contributes to more vibrant streetscapes and improved commercial activity in the district. Enhancing and extending the public realm, in conjunction

with improvements to individual properties, will facilitate connections within the district, provide a safe and interesting environment for pedestrians and highlight the area's unique characteristics.

Pedestrian amenities, including street furniture, street trees and other elements enhance the comfort & use of walkways will act as a buffer from street traffic. Enhanced streetscaping and pedestrian amenities will help create a more vibrant pedestrian realm for the area and, along with other new connections, will encourage walking within the district.

Pedestrian areas should be defined by special paving. Walkways should accommodate tree grates, ambient street light and other amenities.

6.2.3 Heritage Walk

The city core possesses historical importance and architectural beauty. As per State Archeological Dept. GoMP, there are two ASI identified sites in ABD area: Rajwada and Krishnapura Chhatri. Bulle Shah ki Chhatri and Lal Bagh Palace are other two ASI identified archeological sites nearby ABD area. Based on reconnaissance survey and frequent visits, some more historically important buildings are identified. The structures of heritage importance are:

- Rajwada (ASI identified)
- Krishnapura Chhatri (ASI identified)
- Gopal Mandir
- Martand Mandir
- Jain Mandir, Shakkar Bazar
- Kanch Mandir
- Durga Mata Mandir
- Banke Bihari Temple
- Imam Bada
- Indreshwar Mandir
- Holker Chhatris (2)

It is recommended that a specified route should be defined for heritage walk in 'heritage precinct area' of ABD. Design interventions should be detailed out while planning for implementation of this proposal. Looking into the movement pattern by residents, two streets (Sheetala Mata Mandir road and Pipli road) have been proposed for one-way vehicular movement. The design elements under heritage walk should address the issue, wherever it has to deal with these streets. The figure below highlights the heritage walk route in heritage precinct area. Appropriate façade treatment should also be done along heritage walk streets. Public utility and facility like public toilet and street furniture plays significant role on these streets.

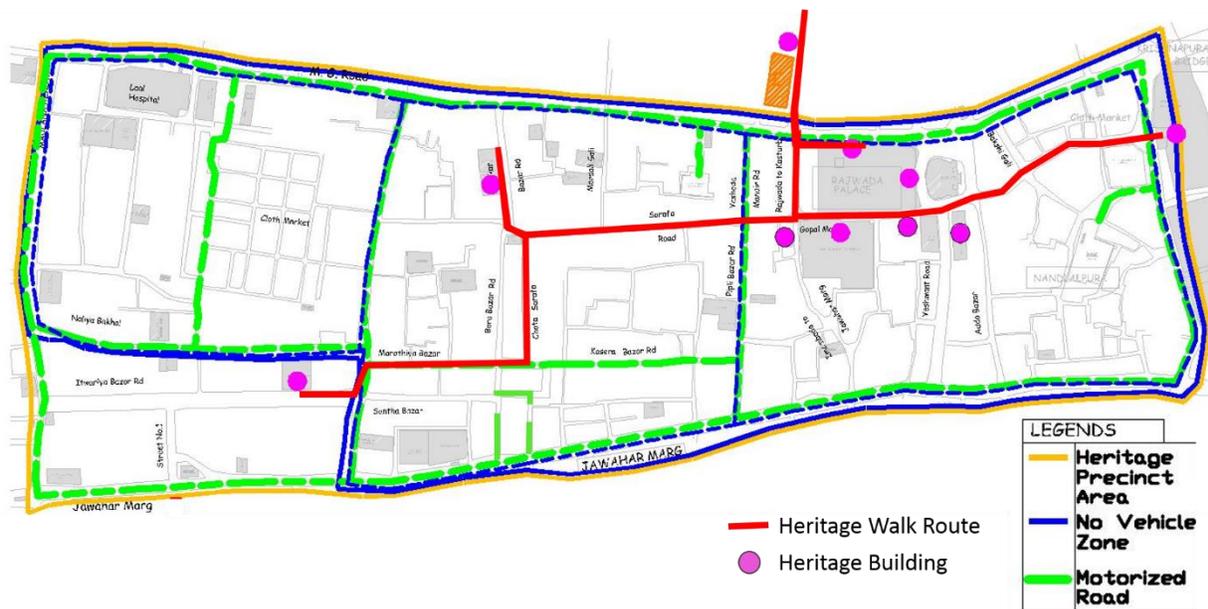


Figure 59 Streets identified to be considered under heritage walk & Façade treatment

Street Character

Every street has its distinct character by its economic and cultural values, it should be reflected by its design guidelines. Street wise design regulations should be proposed, while detailing out the urban design treatments in heritage precinct area. To understand it, let us discuss some of the basic guidelines proposed in concept report submitted by REPL for Sarafa:

- Some of the building with the distinct architecture style like Indo Saranic, Maratha style, Temple style should be preserved as it is with some modification in colour and design if required.
- Plinth level of all the shops should be uniform , further up and down in the level of shops should be further taken care within the shops itself.
- At the ground floor level, there should be glazing upto minimum 2.4m high over it there should be the signage of standard 2' ht, signage sizes and font style should be uniform.
- At upper floor level rectangular window proportion can be provide to provide uniformity in the design, and 2' high signage space can be provided at spandrel area or at the top of window.
- Personal signage should not be allowed except the location mentioned above, it should be 2' high and its colour, font sizes and type should be as per the urban design scheme of that area.
- After nearly 10.5 m building should be recessed to min 1.2 m and that line can also be emphasized by an Eave or cornice of some selected colour.
- Colour and design elements on building façade along with signage colours should be inspired by local heritage building in vicinity like Rajwada, kanch mandir etc which will provide the street its legibility.
- Design and colour of the all street and urban elements like railing, street light poles, urban signage, benches should be inspired from local heritage.
- Building colour and paving on the road should respond to each other.

6.2.4 Building Form

The building form and massing have to consider how the building and Massing will be viewed as well as impact views from major roads and key open spaces / buildings, such as Rajwada Palace / Plaza etc.

Built Form adjacent to Proposed Plazas such as proposal to have View Corridor / Plaza connecting Rajwada Plaza to Krishna Pura Chhatri needs to respond to such proposed plazas. Consideration is to be given to the scale, form and

architectural expression of the surrounding buildings many of which are heritage buildings.

The overall building form and massing of individual buildings is to consider the scale, form and architectural expression of the surrounding buildings, and be designed to contribute positively to the urban fabric of the city. The design of the building form and massing, together with the architectural treatment, is to consider how the building will be viewed and its response to built form in vicinity.

Building Location and Orientation

The proper location and orientation of buildings are essential considerations in ensuring an urban look and feel for the Historic Precinct of ABD Area, creating a well-defined, safe and interesting public realm. By placing new and old buildings adjacent to the street edge, providing active ground floor uses and establishing consistent setbacks a more pedestrian- friendly urban environment will be created. Along the urban priority frontages, it is important to have a continuous street-wall along the street edge with active uses and building entrances.

New buildings should align with front property line(s) / setback line (as defined in Street Layout / MasterPlan, varying from street to street) to frame the abutting streets and create a continuous building edge along the street. Extra Setbacks may be provided in certain locations for enhanced landscape and pedestrian activities where appropriate.

Building facades fronting onto streets shall follow a consistent setback distance (as defined in MasterPlan), creating a continuous street-wall with ample space between shopfront and abutting vehicular street.

Ground Floor shops will be encouraged to provide transparent glazing on urban street frontages to define street edges and create a continuous street wall and enhancing street level activity. Active at-grade uses such as shops and restaurants across ABD Area as identified in Masterplan as Mixed-Use/Commercial areas shall be encouraged to support an active streetscape.

Active Frontage / Shopfront shall continue upto 25m depth from edge of the Intersection / Junction between Commercial/Mixed-Use Street and Residential Streets such that active frontage doesn't end abruptly. Also, leftover spaces where currently building edge does not align with street edge such spaces shall become an extension of pedestrian walkway to accommodate any street furniture/facilities. Similarly, any current gaps between the building edges where there's no building frontage or unutilized space shall become part of Public space until new building is constructed.

6.2.5 Building Height

Different building heights for different streets / individual precincts will be specified to create a layered, three-dimensional skyline profile, to respond to the specific site context, to respond to the context and to reinforce the character of the district. In general, approach is being adopted such that the overall building height steps down towards Rajwada Palace / Shiv Niwas Palace to retain a lower-rise character around it and also retain its prominence.

Low-rise heights will be specified where there is a need to maintain a pedestrian-friendly scale, for example, along the Riverfront Development and Heritage Precinct, and to safeguard views towards key Heritage / Cultural Buildings and Open Spaces.

The maximum allowable building height is subject to the prevailing Master Plan controls and technical height controls imposed by the Core Area Development Control Norms. For Residential developments within the Core Area, an equivalent building height to the maximum allowable height for a commercial building can be considered to give greater design flexibility.

Building Massing

The massing, height and arrangement of architectural elements of new buildings should be sensitive to adjoining properties and complement the overall precinct character. A context sensitive approach to height and massing should respect existing built form, while contributing to the creation of a vibrant streetscape.

All new buildings and developments should be designed as a minimum of 2 storeys or 8 metres in height or as defined in Master Plan Norms.

Buildings with specific elements / massing can be identified at the corners of larger sites and at intersections. Such Buildings / Sites that should clearly mark the corner or portion of facade and should emphasize the focal nature and visibility of these buildings.

Overall building height should be appropriate to the type and form of adjoining development and form appropriate transitions in scale to existing adjacent smaller buildings.

6.2.6 Building Edge

In general, future developments around the Rajwada Precinct and Primary Roads are to be set back from the Proposed Line of Right of Way to keep a provision for future expansion / green buffer / pedestrian space. This is envisaged to provide a contemporary setting for the developments and to reinforce the character of the district.

Future Developments around the – Bada Sarafa, Bartan Bazar, Chota Sarafa etc. other designated streets are to be built up to the Proposed Line of Right of Way for minimum 3 storeys high to provide a well-defined streetscape with recessed Ground Floor to provide consistent space for Covered Walkway. Plinth Level for all buildings across the street should be consistent, preferably @ 300mm or as defined for specific streets.

To create distinctive and well-defined streets, developments in other areas will generally be built-up fully to the proposed Right of Way line to a minimum height of 2/3 storeys (with upper storeys recessed further), unless otherwise stated. Up to 30% of the length of the building facades (except buildings at the Corner), should be set back at Upper Levels from the ROW Line to allow for articulation of the building form, while maintaining Ground Floor Level Line to create a variety of spaces and interesting building forms.

Developments along Proposed Pedestrian Avenues as identified in MasterPlan are required to be set back from the ROW Line to allow for a wide pedestrian walkway and the planting of an additional row of trees to create a tree-lined Pedestrian Avenue character. For ex. Pedestrian Avenue Proposed from Rajwada to KrishnaPura Chattri.

Building Design and Articulation

The area has a mix of strong historical character along-with building's with random character. New development and any redevelopment should complement and enhance the historical character. The use of simple materials, detailing and historical character is encouraged. A clear architectural expression of building facades is essential for all redevelopment in the precinct. This can be achieved through the careful design of the relationship between the ground floor, its uses and the building design.



Mix of Historical Character in the area



Buildings with Contrasting Colors /
Materials like ACP/HPL etc. to be avoided

Use of high quality and durable materials that reflect existing aged buildings in the district should be used for new developments. Wherever appropriate, new buildings should reflect the building materials and/or the existing / old style.

Use of materials like Aluminum Composite Panel / High-Pressure Laminate (ACP/HPL) with

contrasting color / texture to surrounding building should be avoided. Materials should respond to Cultural Heritage of the Precinct.



Buildings in Corners should have some articulation to mark edge of the street



New Buildings with Classical Style and integrated Signage should be promoted.



Buildings with Classical Style

New buildings on corner sites, or sites located at intersections, should be articulate through selective utilization of architectural elements, which could include bays, accentuated rooflines, projections, recesses, canopies, changes in materials and/or other architectural detailing.

Appropriate use of architectural expression to building facades that are visible from the street and avoid blank, single-material walls. Treatments could include colour / material / level variations, windows and articulations in the wall plane.

Apply Clear glazing to facades at ground level facing streets.

6.2.7 Building Use

To create vibrant precincts as well as attractive and pedestrian- friendly streets, activity-generating uses (AGU) such as retail, food & beverage, entertainment, sport and recreation (such as gymnasiums and fitness centres etc.), and other similar uses are to be provided at following locations :

- Ground Floor Level of all developments along streets identified as commercial / Mixed Use as a continuation of the retail experience of Core City Area.
- Alongside the Proposed underground pedestrian walkways identified across the ABD Area.

Space for Outdoor Refreshment Areas (ORA) / Street Vendors, can be considered within the public areas or open spaces. The scale and design of the ORA and its structures (if any) are to complement the adjacent building / landscape.

Spaces for ORAs / Street Vendors should be designed along with any allied Public Convenience Facility. The ORAs / Space for Street Vendors will be clearly defined to prevent encroachment onto the adjacent pedestrian thoroughfares / public space e.g. through the use of different floor finishes or planters, etc.

6.2.8 Pedestrian Network

The Core City Planning Area is planned as a pedestrian-friendly area with a comprehensive pedestrian network. The Proposed network would provide convenient, comfortable and seamless connections between developments, transport facilities, key spaces and attractions. The pedestrian network will be designed for universal access.

Public Walkway

A vibrant and active pedestrian-friendly streetscape is a primary goal for the district following Smart City Guidelines. Sidewalks adjacent to roads establish clearly defined pedestrian routes that are identified separately from vehicular traffic areas. A pedestrian-friendly district includes easily navigated, barrier-free sidewalks, open spaces and well-marked crosswalks.

- Minimum 1.5m wide Walkway should be provided adjacent to all streets and along all building facades with building entrances to make walking more comfortable and enhance the perception of safety.

- Provide barrier-free access on sidewalks, for the physically and visually impaired by grading and scoring all sidewalk edges and curbs.
- Provide accent paving and pedestrian lighting to clearly define pedestrian areas (e.g. sidewalks and plazas) and clearly identify areas where pedestrians may encounter vehicles along their route (e.g. crosswalks and intersections).
- Facilitating Pedestrian movement across the Precinct by maintaining cleanliness through the placement of street furniture, such as benches and garbage receptacles.
- Each bus shelter / E-Card Stop Point should be provided with distinct name exhibiting relationship with Local Heritage (e.g. name of the intersecting street/nearby Landmarks) and include a map and schedule. Pedestrian paths should be created to connect bus shelters with the main entrances of new developments.
- Bicycle racks should be provided at regular intervals on routes identified in Masterplan to promote non-motorized transportation.
- Create a consistent language for street furniture, including all pedestrian amenities, that exemplifies the Historic character of the area.
- Plantation / Trees should be provided along street walkways, wherever possible. In instances where the existing sidewalk widths are not conducive for incorporating street trees, design should try to accommodate them as planters if possible.
- Flora / Plants should only be native species that are tolerant of Indian Urban conditions including salt, poor soil and uneven irrigation.

Pedestrian Avenue

The Pedestrian Avenue along the Rajwada to KrishanPura Chhatri not only connects two buildings but collates the fragments of built history together and also ensures that prime pedestrian / cultural space is safeguarded for public

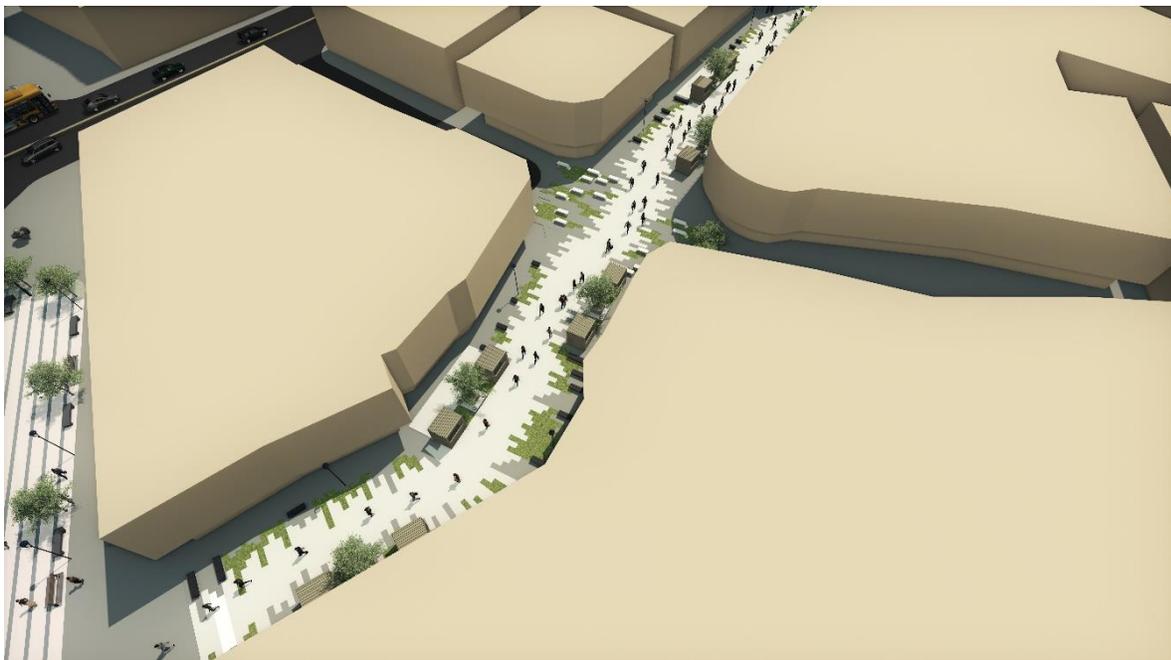
access and enjoyment. Future Developments along this Pedestrian Avenue are required to be setback from the ROW for the 12m/15m wide promenade that comprises foot path, landscaping, and public amenities like street lamps and benches.

Pedestrian Avenue Development (Veer Sawarkar to Rajwada Palace)

Progressing further with the vision intended in the SCP to create an Integrated & Comprehensive Development in Core City Area, rejuvenating the existing development. This Project intends to create a Pedestrian Avenue connecting Historical Nodes of KrishanPura Chhatri and Rajwada Palace. The

Proposal aims to integrate Proposed RiverFront Development with Core City Area utilizing Rajwada Plaza as Pivotal Node.

Proposed Pedestrian Avenue facilitates access from Riverfront Development to Core Area. Pedestrian Avenue would create Activity Spine with spaces for People to relax as well facilitating shopping experience. People can drop their Vehicles at any of the three Parking Facilities near RiverFront and walk to Primary Plaza Area without being obstructed by Traffic. Folks coming thru Public Transport would Drop-Off near KrishanPura Chhatri and have unhindered access upto Plaza Area.



The Street development would also include improvement of existing built aesthetics and visible improvements in streetscapes by removing the web of power & telecom cables and shifting them underground. The Proposed Pedestrian Avenue is planned to be green, Disabled Friendly development. Design proposes approx. 12m wide Pedestrian Avenue across the length without demolishing any existing building (Some encroachments will need to be removed). The development has multiple Seating Facilities across the length along-with Outdoor Refreshment Areas (ORA / Kiosks) within the Pedestrian Avenue. Some of the Kiosks will be dedicated for Hawkers / Street Vendors, provided on lease to Rehabilitated Hawkers. ORAs / Kiosks will be clearly defined to prevent encroachment onto the adjacent pedestrian thoroughfares - e.g. through the use of raised timber decks or planters, etc.

The culture of street vending has been an integral part of urban lifestyle across India. Street vendors form a vital part of the social and economic life of a city. The Proposal aims cater to important section of society, the Street Vendors, with dedicated locations/spots along Pedestrian Avenue / Plazas to create AGU's (Activity Generating Use) as well as provide employment to underprivileged. Indore Smart City would provide opportunities to such small entrepreneurs with



dedicated spot, which would be allocated digitally and each vendor would be issued Smart Card which would provide temporary lease of spots to vendors.

Existing Built Mass encompasses Covered Passage in one stretch, The Proposal also envisages creation of Covered Walkway along the whole length of Pedestrian Avenue by carving out space from Existing Built Mass, increasing Overall Pedestrian Space to 15m.

The Street has been designed in way to accommodate movement of Emergency Vehicles (Fire Engines / Ambulances etc.). Trees / Kiosks are placed on alternate edge of the street to provide unhindered 6m wide passageway for Fire Engine. Street Furniture is accommodated under Trees to provide comfortable seating, Kiosks are also harboured adjacent to Trees so that People buying Refreshment from these Kiosks have seating facility nearby.

Covered Walkways

All existing buildings and future developments are to provide covered walkways (with Recessed Ground Floor Level) as notified in Urban Design Plan. In case, Building is Setback from the ROW Line, developer should provide a covered walkway maintaining the same line as Covered Walkway in adjacent buildings.

The covered walkway should have the internal clear width of 2.0m/2.5m wide, unless otherwise specified. To provide adequate weather protection to pedestrians, the external clear height are to minimally match the width of the covered walkway. To maintain a distinct district character, all covered walkways are to be predominantly paved in same material in accordance to the prevalent rules as notified by Indore Municipal Corporation.

Covered walkways / linkways, shall be exempted from FAR computation to incentivize private developer.

Underground Pedestrian Links / Subway (UPL)

The Underground Pedestrian Links as identified in Masterplan or later as notified by IMC will complement the Street Level pedestrian network and also provide connection to Mass Rapid Transit System (MRTS) stations / other Public Transport

Nodes. UPL's should have Activity Generating Uses on at least one side. As a guide, the UPLs should be at least 6.0m wide (with AGUs on one side) or 7.0m (with AGUs on both sides) unless otherwise specified.

UPLs will be connected to Street Level Pedestrian Network thru vertical pedestrian circulation points. Each vertical circulation point is to include a pair of two-way escalators, staircases, and a passenger lift. The entire UPL and the associated vertical circulation points will be kept open for public access for 24 hours, unless otherwise specified.

Connection to MRT & Public Transport Facilities

For developments adjacent to commuter facilities (e.g. bus stops / Public Transit Point/Bicycle sharing points) located in front of new development, sheltered linkways should be constructed by Developer/Owner connecting to the covered walkways at the recessed Ground Floor to these facilities to provide direct continuous sheltered connections.

6.2.9 Plaza and Open Space

Proposed Rajwada Plaza will provide a unique space and identity to this precinct and provide a significant opportunity for residents, visitors and tourists in the area to experience rich cultural heritage and unwind from current chaos. New developments adjacent to, or near this Plaza / RiverFront Development should focus on creating visual and pedestrian connections to these developments. Any Vacant or underutilized sites in the area also provide opportunities for the creation of new landscaped open spaces, such as smaller civic plazas. Such vacant lands as identified can be allowed to have higher no. of floors with less ground coverage to continue to provide smaller plaza space to public.

- Provide amenities and lighting throughout the identified Dedicated Pedestrian connections and Public spaces to enhance its safety. Link Riverfront Development amenities and lighting into the precinct at key locations to draw users / tourists into the Historic Precinct.

- Buildings adjacent to the Plaza area should be redeveloped with active uses such as art gallery / souvenirs shop / restaurants facing onto the Plaza to promote cultural activities also aid in promoting tourism, creating Cultural Hub for Indore
- Identifying other small civic plazas for community gathering spaces that are physically or visually connected to the Rajwada Plaza.

Rajwada Plaza Redevelopment (Rajwada Palace)



Rajwada Plaza has been used as a Public Gathering Space since time immemorial. Even today, it serves as a Primary Node to access the Old City Area, with various modes of Public Transport either culminating here or transiting through this node. On all major Festivals Occasion, the space transforms into Celebratory Mode, entwining Past with Present and mingling Contemporary with Tradition. People from all walks of life, of all age groups come into this space to become part of Celebrations.

With Rajwada Plaza Redevelopment, the design concept aspires to bolster prevailing traditions and transform space as a zone for people to unwind, as a zone which makes people part of Celebration daily, not just on a few Occasions. The Proposal strategizes to reinforce its Significance as Primary Node not just for Old City Area but to serve as Primary Node for the Whole City.

The Proposal aims to expand usable space within the plaza area, and further underpin its value. Currently the primary Plaza space is surrounded by Roads on



all sides which reduces functional space, also space is subdivided further because of level variations and Boundary Walls to earmark open space & shield Rajwada Palace from Vehicles. Proposal aims to clear all such hindrances and create large breathing space within dense urban fabric. A space free from traffic conflicts.

Proposal also ponders on the MRT Route planned through this Area. Proposal targets to boost Rajwada Plaza's importance as Transportation Node. MRT Station at Plaza will improve its connectivity, additionally Multi-Mode Transport Interchange Point is being proposed adjacent to it, to improve Last Mile Connectivity as well as serve people coming thru various modes of Transport. Plaza would also serve as Interchange Point for Smart Vehicle providing Pollution-Free Last Mile Connectivity.

Design Scheme of Plaza aims to retain existing Trees within the Plaza area and create obstruction free Open Space, which can be utilized on multiple occasions and simultaneously for day to day public activities. The Design

Concept contemplates theme one which blends Contemporary with Tradition as this space already does metaphorically.

MRT Stations would be integrated with Multi-Model Transport Interchange Points, linking People to Auto / Taxi / Private Vehicles / Smart Vehicle / Cycleways etc. These Interchange Points would help integrate various modes of transportation.

Public Art

Public art can add to the area's existing character and identity; contributing to the overall spirit and success of a location. A precinct wide public art strategy should be developed to encourage and identify appropriate locations for art and the requirements for making it happen.

- Development of New Art Committee to prepare a precinct wide public art plan.
- Retain and identify existing Icons / Landmarks as precinct features.
- Reflect the Vibrant character and history of the area through public art where appropriate.
- Locate public art at sites visible from streets and intersections (particularly at intersections identified as "gateways") and public plazas or other civic spaces.

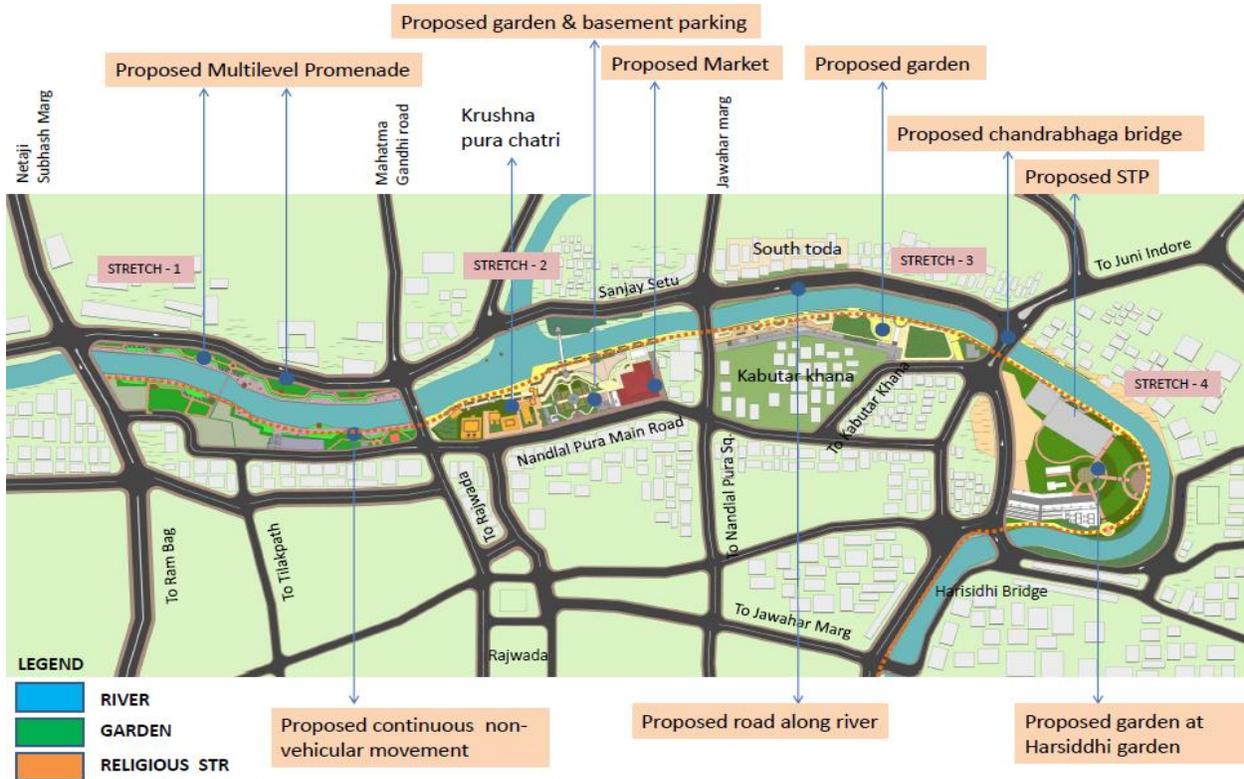
6.2.10 Riverfront Development

Riverfront development is proposed along Kahn river starting from Rambagh Bridge to Karbala Bridge. The entire stretch is divided into two phases of implementation with four stretches in each phase. The four stretches under phase-I of implementation is already considered under fast track projects. These stretches are fully or partially under implementation. The key features of the proposal include:

- Multilevel Promenade
- Garden with basement parking
- Market

- Upgradation of existing bridges

The figure below shows the components of proposal to be executed under phase-I of implementation.



6.2.11 Other Works within Core Area

To achieve a pedestrian-friendly and consistent district character, all new developments or developments undergoing major Additions and Alterations are required to include the upgrading of the existing Street Front Facade as part of the works. The key elements to consider will be façade treatment, paving materials, pedestrian walkways, covered walkways and street lighting etc.

Street Lighting and Furniture

To create a distinctive district character for the Core City Area, the public street lighting / furniture along the Streets will be kept standard as notified by IMC. The spacing and location of the public street lighting will be coordinated with the other street furniture and landscaping within the Right of Way, and subject to the approval of the relevant Authorities. Where required, tactile tiles (for visually

impaired) and bollards are to be installed at key pedestrian crossings, kerb cuts within the Right of Way.

Signage

The design, materials, scale, style and technology of signage should reflect the historical look and feel for both wayfinding signage and business advertising signage.

Encourage signage to be integrated in building design rather than as a secondary structure or covering complete facade. Building identification signs should be compatible with the building design in scale, material and colour.



Buildings should not have extraneous Signage.



Buildings should not oversized Signage. It should be proportionate to building.

Design signage should be complementary, not the dominant feature of buildings or development. Closely relate signage to building entrances and generally place signage in a low wall element or on the building itself. Commercial signage should add diversity and interest to retail streets, and be compatible with the building design in scale, material, colour and respond to Detail Signage Guideline if applicable for particular street.

Design stand-alone signs (ground signs) to be shared among various shop, and integrated into landscaping. These signs should not exceed 1.2 metres in height, unless incorporated into a public art installation. Reflect the distinct character of

the area, particularly the historical feel, in corporate/retail identities utilized in building signage.

6.2.12 Sustainability

New buildings and developments should address environmental sustainability principles from the early design phase through to implementation. These guidelines will be applied in conjunction with the NBC, ECBC and relevant GRIHA / LEED Standards.

Adaptive Re-Use and Recycling

Older buildings within the district, which may have outlived their intended purpose, provide excellent opportunities for adaptive re-use, while retaining their highly valued historic features.

Reducing the use of new materials through re-modelling or adaptive reuse of all or parts of existing buildings is an effective means of achieving environmental sustainability objectives in the private realm. When feasible, this is often a better environmental option than demolition and recycling. However, the energy consumption of existing buildings should be carefully considered when assessing the environmental merits of a project.

Consider conversion of older buildings, or portions thereof, in the area for adaptive reuse. Older buildings can be transformed with a variety of uses, including mixed use, retail, offices and restaurants.

Consider using salvaged materials from demolition in new building construction, avoiding the waste and pollution of new production.

If there are no salvageable materials available from an existing development site, they should be purchased directly from demolisher contractor and used materials dealers. Reused materials can be used both in new buildings and in public amenity areas, an example being outdoor paving.

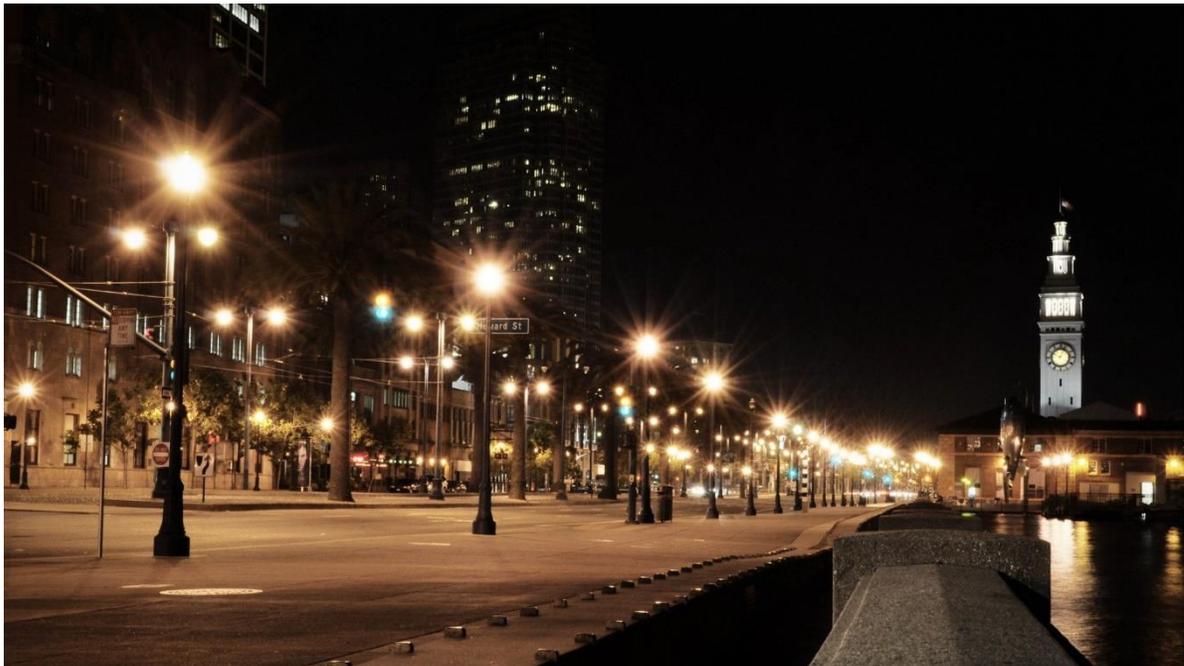
New Building Design

Provide building envelopes and building facade designs in new buildings and developments to accommodate a variety of uses/ users over the building / structure's life span.

The design, materials, scale, style and technology of signage should reflect the historical look and feel for both way finding signage and business advertising signage.

6.2.13 Night Lighting Guidelines

Core City / Historic Precinct is vibrant & lively in daytime while in late evening/night time the area dwells under darkness except Sarafa Bazar. Good night lighting can help to transform the image of the city by improving the appearance of the city at night and extend the life of the city after dark even extending shopping activities until late night.



Night Lighting Concept for the Streetscape

The night lighting design refers to the lighting up of the exterior of the building to highlight the design of the building, in particular, the roof, facades, main architectural features, covered walkways and open spaces, using permanent lighting fixtures.

The night lighting concept should also give legibility to the building form. Roofs and architectural details should be emphasized in proportional illumination to the rest of the building and surroundings.

As a guide, the nightly lighting shall be elegant, tasteful and sensitive to the architecture of the building and well-coordinated with the overall night time streetscape.

The guidelines aim to achieve a coherent and well-coordinated nightscape for the area and provide a recommended framework for the lighting treatment of various building types, which are broadly classified under two categories - Classic and Contemporary. Some of the identified streets for night lighting are:

- Street from Krishnapura Chhatri to Sarafa
- Chhota Sarafa
- Shakkar bazar road

Heritage Buildings - National Monuments, conservation buildings, places of worship, old shophouses, and other developments built in the traditional style are guided to be of a lower lighting intensity and warmer colour temperature, to bring out the majesty and civic character of these buildings. Some of the heritage building identified for night lighting are:

- Rajwada
- Krishnapura Chhatri
- Gopal Mandir
- Martand Mandir
- Jain Mandir, Shakkar Bazar

- Kanch Mandir
- Durga Mata Mandir
- Banke Bihari Temple
- Imam Bada
- Indreshwar Mandir
- Holker Chhatris (2)

Contemporary Buildings - Depending on the architecture and choice of materials, contemporary buildings can be lit with white or warm white light. More flexibility is also given for the buildings to be lit in a range of varying lighting intensity. The lighting proposal should consider how it would enhance the architectural expression of the development, and complement the surrounding developments.

Sufficient measures must be taken to ensure that night lighting fixtures and mounting details are fully integrated with the architecture and/or landscape design of the building and screened from view. The fixtures are to be located fully within the site boundary and are not to encroach into the adjacent Right of Way.

The night lighting equipment shall have necessary protective means from damage, theft and harm to the public, for those elements that are accessible to the public.

Light Trespass and Light Pollution

There is also an environmental concern about the Light Pollution. Night lighting should thus be executed sensitively to avoid glare, light trespass and light pollution. Pedestrians, residents, drivers, and other fields of vision shall be considered to prevent light spillage and to increase the energy efficiency of the lighting.

Energy-Efficient and Maintenance-Friendly

Only those Light sources that have a high energy-efficiency rating, have a long operating life for easier maintenance, and are of high economic efficiency, such as compact metal halide lamps, fluorescent lamps, LEDs, are recommended for use.

CHAPTER 7: RESOURCE FUNDING ANALYSIS

7.1 Value Capture Finance

7.1.1 Introduction

Rapid urbanization in India has led to increased demands for providing state-of-art infrastructure in Urban Local Bodies (ULBs) and the ULBs are continually looking for new sources of funds in order to meet the requirements of creating and upgrading infrastructure. Similarly, the Ministries and Departments of the Government of India have to make lumpy investments for infrastructure development at the national and regional levels.

7.1.2 Current Source of Revenue

Ordinarily, own sources of revenue in ULBs can be classified into three categories.

- (a) taxes levied by the municipality
- (b) user charges levied for provision of civic services
- (c) fees and fines levied for the performance of regulatory and other statutory functions.

Octroi, which was one of the main sources of own income of the ULBs has been abolished. resulting in a serious dent on ULBs' resources. On the other hand, property tax, which is at present the main source of own resources is underused and has issues related to its narrow tax base, exemptions, etc. Furthermore, the State Governments are increasingly fixing the rate for services being provided by ULBs, even though these functions are mandated to be performed by ULBs under the 74th Constitutional Amendment. Overall, this has led to increased dependency on State Governments and reduction in efforts made by ULBs to mobilize resources.

Land is the most fundamental asset that is owned and managed by the States/ULBs and is a resource to generate revenues. Traditionally, States/ULBs

have relied on the direct sale of lands to raise funds. which is a less efficient form of resource mobilization, as compared to value capture.

7.1.3 What Is Value Capture Finance?

Value Capture as practiced widely in the world is based on the principle that private land and buildings benefit from public investments in infrastructure and policy decisions of Governments (eg. change of land use or F.A.R). Appropriate VCF tools can be deployed to capture a part of the increment in value of land and buildings. In turn, these can be used to fund projects being set up for the public by the Central/ State Governments and ULBs. This generates a virtuous cycle in which value is created, realized and captured, and used again for project investment.

As the additional value is generated by actions other than land owner's direct investment. Value Capture is distinct from the user charges or fees that agencies collect for providing services. It gives governments the opportunity to launch new projects, even with a small resource base. For the private actor, VCF is an opportunity because projects are properly planned and backed up by the Government either through an executive authorization or through risk sharing.

Following are the various Value Capture Methods suggested by the MOUD, GOI are as follows:

1. Land Value Tax
2. Fee for changing land use
3. Betterment levy
4. Development charges
5. Transfer of Development Rights
6. Premium on relaxation of Rules or additional FAR/F.A.R
7. Vacant Land Tax
8. Tax Increment Financing,

9. Land Acquisition-Development

10. Land Pooling System.

S. No	Value capture method	Frequency of incidence	Scale of intervention
1.	Land value tax	Annual rates based on gain inland value uniformly	Area-based
2.	Fees for changing land use (agricultural to non-agricultural)	One-time at the time of giving permission for change of land use	Area/Project-based
3.	Betterment levy	One-time while applying for project development Rights	Area/Project-based
4.	Development charges (Impact Fees)	One-time	Area-based
5.	Transfer of Development Rights	Transaction-based	Area/project-based
6.	Premium on relaxation of rules or additional FSI	One-time	Area (Roads, railways)/ Project (Metro)
7.	Vacant land tax	Recurring	Area-based
8.	Tax increment financing	Recurring and for a fixed period	Area-based
9.	Land Acquisition and Development	One-time upfront before project initiation	Area/Project-based
10.	Land pooling System	One-time upfront before project initiation	Area/project-based

Figure 60 Value Capture Methods

CHAPTER 8: DEVELOPMENT CONTROL REGULATIONS

8.1 Introduction

The Development Control Regulations shall be applicable to regulate an orderly growth of the Smart city ABD area in accordance with the development policies and land use proposals as contained in the ABD area Detail plan prepared under Smart City Mission by the Gov. of India. It is a set of systematic approach of regulations to decide the true interpretation of the plan proposals by supporting Heritage conservation guidelines, Parking Norms, Recreational areas development, NMV zones, TOD principles. The other detailed regulations which are not covered under these regulations, provisions of Indore Master Plan 2021 & M.P.Bhumi Vikas Niyam 2012 shall be applicable.

8.2 Applicability

These regulations shall be called as Special Development Control Regulation (SDCR) to control the development in Smart city ABD Area and shall apply to

- a. All development of land, Redevelopment, construction, alteration and demolition of building in the ABD Area, 30 m maximum outer buffer/immediate parallel road to the ABD boundary.
- b. All Redevelopment parcels.

Note: The building permission shall be granted by the Competent Authority.

8.3 Jurisdiction

- a) The SDCR prescribed in this chapter shall be applicable within the Smart city ABD Area, 30 m maximum outer buffer/immediate parallel road to the ABD boundary, as delineated in the Smart City mission proposal approved by MoUD.

- b) As per chapter-6 of Indore Development Plan-2021, point 6.3.18 (Jurisdiction and Implementation Guidelines) shall not be applicable on this Master Plan.
- c) The competent authority referred in this chapter means the authority declared by the State Government & as said in the relevant chapters of these regulations to grant the permission for permissible uses in various use zones.
- d) The location and boundaries of each use premise given in the detailed layout plan/ zoning plan shall have reference to the existing road/drain and other physical features as obtained on the site.
- e) Relocation of Jhuggis/Slums in the use zones, except in the catchment area of water bodies, recreational areas, and areas of proposed roads shall be permissible.
- f) Under Exceptional circumstances involving public purpose, development permission could be granted by IMC involving developments of State level and city level activities benefiting the city population collectively, within the provisions of M.P Nagar Tatha Gram Nivesh Adhiniyam, 1973 & Municipal corporation Act 1956.
- g) Any structure or activity connected with utility infrastructure by the govt. authority shall be permissible in any of the use zone as per requirement of site and utility infrastructure planning and design duly approved by the competent authority.
- h) In the areas where certain restrictions are required to be imposed from security, aesthetic, required infrastructure development, the IMC will be competent to pass such orders.
- i) No Building permission for Redevelopment parcels shall be granted by local authority, on any plot or Land of any size, which is not approved by the Town & Country Planning Department.

- j) The space below the flyovers/ROB in the areas may be allowed for parking / commercial/any other use depending up on the requirements. Such activities will be permitted with the prior approval of competent authority.
- k) In the areas identified for multi-level parking, only 2 shops with an area of 25sqmts. each & 1 office not exceeding 20 sqmts. of the operator of parking on ground floor may be allowed for commercial activities by the competent authority.
- l) The green buffer along the Rivers/major tributaries as shown in the plan where no building construction will be permitted. The open space along the river/ major tributary of the river shall be minimum 30 meters from the highest water level on the river bank shall be left. But on these open spaces development of road & public parking is permissible by the competent authority.

8.4 Definitions

In these Regulations, unless the context otherwise requires, the terms and expressions shall have meaning indicated against each of them as mentioned below;

Terms and expressions not defined in these regulations shall have the same meaning as assigned to them in,

- a) Indore Masterplan 2021 as amended up to date
- b) MP Bhumi Vikas Niyam 2012
- c) The terms and expressions neither defined in these regulations nor defined in a) & b) above shall be interpreted with reference to the latest National Building Code in the relevant context.

1. Adaptive Re-use

Means the process of reusing an old site or building for a purpose other than which it was built or designed for, while retaining their historic features – for

better sustainability / compatibility / facilitating interpretation etc. with minimal impact on visual / structural / historical aspects.

2. Additions and / or Alterations

Means any change in existing authorized building or change from one use to another use, or a structural change such as additions to the area or height, or the removal of part of a building, or a change to the structure such as the construction or cutting into or removal of any wall or part of a wall, partition, column, beam, joist, floor including a mezzanine floor or other support or a change to or closing of any required means of ingress or egress or a change to fixtures or equipment's, as provided in these regulations.

3. Advertising Display Infrastructure

Means any surface or structure with characters, letters or illustrations applied thereto and displayed in any manner whatsoever outdoors for the purpose of advertising or giving information or to attract the public to any place, person, public performance, article, or merchandise, and which surface or structure is attached to, forms part of, or is connected with any building, or is fixed to a tree or to the ground or to any pole, screen, fence or hoarding or displayed in space, or in or over any water body included in the jurisdiction of the Authority.

4. Air Conditioning

Means the process of altering the properties of air such as its temperature, humidity and quality to meet the requirements of an enclosed space.

5. Amalgamation

Combining two or more plots as a single plot.

6. Amenities

Means roads, streets, open spaces, parks, recreational grounds, play-grounds, gardens, water supply, electric supply, street lighting, drainage, sewerage,

public works and other utilities, communication network, surface and convenience.

7. Apartment / Flats

Means multi-storied residential buildings constructed in a detached or semi-detached manner designed as ground floor with more upper floors and constructed as separate dwelling units with common staircase.

8. Atrium (Plural Atria)

Means an unobstructed, multi-storied open space within a building that is covered from top with a light-weight or glazed roof.

9. Authorized Officer

Means any person appointed by the competent authority for the purpose of these regulations.

10. Auto Repair Workshop

Means a small establishment where repairs and servicing of automobiles are carried on.

11. Boarding house (service apartment)

It is a premise in which rooms are let out on a long-term basis as compared to hotels.

12. Balcony

Means a horizontal projection, including a handrail or balustrade, to serve as passage or a sitting out place;

13. Banquet Hall

Means a room or an enclosed space or building for the purpose of hosting any social events or ceremonies like marriage, reception, party etc. with accompanying food and beverages.

14. Basement

Means the lower storey of a building having at least half of the clear floor height of the basement or cellar below average ground level.

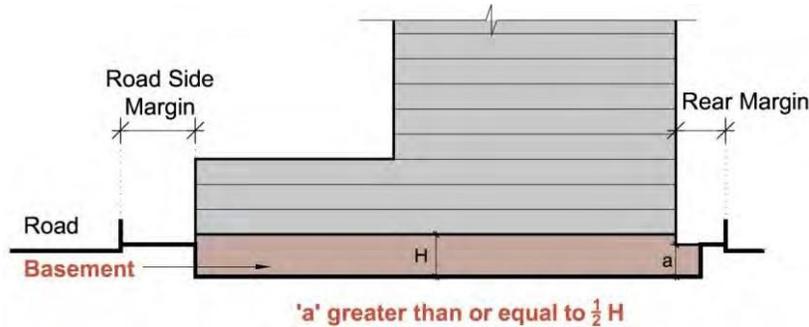


Figure 61 Basement

15. Building

A Building means all types of permanent building, but structure of temporary nature like tents, hutment as well as shamianas erected for temporary purposes or ceremonial occasions, shall not be considered to be "buildings".

16. Building Line

Means the control line up to which the plinth of a building adjoining an existing, proposed or extended street may lawfully extend and includes the lines described in any TP Schemes and/or Development Plan.

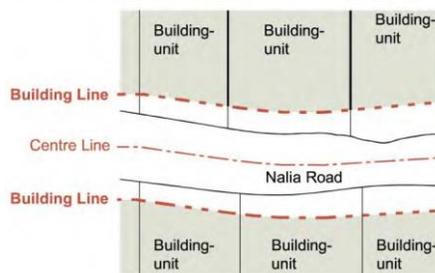


Figure 62 building Line

17. Building setback

Minimum distance between any building or any structure from the boundary line of the plot.

18. Building-unit

Means a land or plot or part of a land/plot or combination of more than one land/plot as approved by the Competent Authority. However, where an alignment has been fixed on any road by any Competent Authority, the Building-unit shall mean and refer to the land excluding the portion falling in alignment.

19. Building height or height of a building

Means the vertical length of the building which shall be measured from a ground or reference level. Such ground or reference level would be at the centre point of frontage of the plot or land from which the access is being taken. If the site is sloping, the reference level will be taken at the centre line of the existing or proposed approach road or street in front of the plot or land from which the access is being taken or the average level of the plot, whichever is higher. The height of the Machine rooms, mump tee, stilt floors, podiums, service floors, parking floors shall not be included in the calculation of building height.

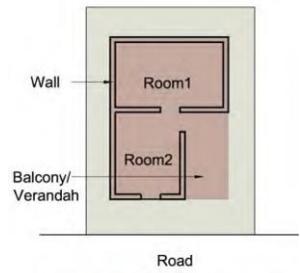
The following appurtenant structures shall not be included in the calculation of the height of a building if the aggregate area of such structures does not exceed one-third of the area of roof of the building upon which they are erected,- water tanks and their supports; chimneys, ventilating pipes, air-conditioning, lift rooms and similar service equipment; temporary shade for plants; and parapet walls and architectural features not exceeding 1.5 meter in height.

20. Built-up Area

Means the areas covered by a building on all floors including the cantilevered portions, if any, including walls and columns, but except the areas specifically excluded under these Regulations.

21. Unit Built-up Area

Means the areas covered by a unit on within a building including the cantilevered portions, if any, but except the areas specifically excluded under these Regulations.



Built up Area = Carpet Area + Walls

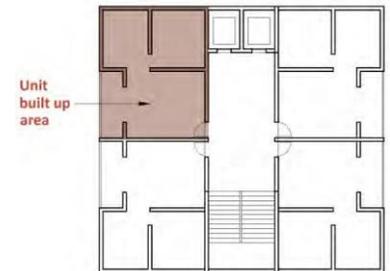


Figure 63 Built-up-Area

22. Bus depot

A premise used by Public transport agency or any other agency for parking, maintenance and repair of buses. This may or may not include the workshop.

23. Bus terminal

A premise used by public transport agency to park the buses for short duration to serve the population. It may include the related facilities for passengers.

24. Call Center

Means an office set up to handle a large volume of telephone calls, esp. for taking orders and providing customer service.

25. Carpet Area

Means the net area within a unit of a building excluding walls or columns, service areas such as washrooms, kitchen and pantry, semi-open spaces such as verandah or balcony, and staircase, lift, corridors or passages.

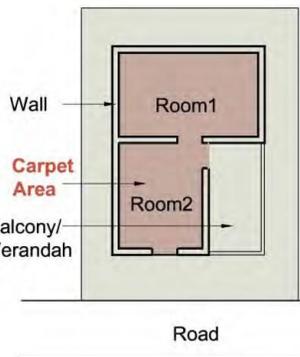


Figure 64 Carpet Area

26. Clear Height

Means the distance measured from the floor to the bottom of the lowest hanging overhead obstruction such as beam, fire sprinkler heads or ducts.

27. Clinic

A premise used for treatment of outdoor patients by a doctor. In case of poly clinic, it shall be managed by a group of doctors

28. Clinical laboratory

A premise used for carrying out various tests for diagnosis of ailments.

29. Club

Means a commercial establishment where people (usually members) voluntarily meet on a regular basis for a mutual purpose other than educational, religious, charitable, or financial pursuits and are entitled to use the premises and property in exchange for the payment of entrance fees and subscriptions to the proprietor as well as any additional rights and privileges provided in their contractual agreement.

30. College

An educational institution or establishment, in particular the one providing higher education or specialized professional or vocational training.

31. Common Plot

Common Plot shall mean a common open space exclusive of approaches, at a height not more than ground level of the Building-unit. The owner shall have to give an undertaking that the common plot shall be for the common use of all the resident or occupants of the Building-unit. On sanction of the development permission, the common plot shall deem to have vested in the society/association of the residents/occupants. The common plot shall not be sold to any other person and it shall not be put to any other use except for the common use of the residents/occupants.

32. Community Hall

A building and related grounds such as Wadis used for social, civic, or recreational purposes, serving the area in which it is located and open to the general public. It is also a place where members of a community tend to gather for group activities, social support, public information, and other purposes.

33. Competent Authority

Municipal Commissioner for IMC as the case may be to perform such functions as may be specified. Different persons or Authorities may be authorized to perform different functions.

34. Corridor

Means a common passage or circulation space including a common entrance hall.

35. Cottage Industry

Means a small-scale, non-hazardous industry carried on at home by family members using their own equipment, without the use of hired labour and which does not cause inconvenience to the inhabitants of the building or neighborhood.

36. Corner site

Means a site at the intersection of two roads and facing two or more roads /streets.

37. Courtyard

A courtyard means a space permanently open to the sky within the site or building structure.

38. Developer

Means the person who is legally empowered to construct or to execute work on a building-unit, building or structure, or where no person is empowered, the owner of the building-unit, building or structure.

39. Disability

Hearing Disability

Means deafness or hearing handicaps that might make an individual insecure in, public areas because he is unable to communicate or hear warning signals.

Non-Ambulatory Disability

Means impairments that regardless of cause or manifestation, for all practical purposes confine individuals to wheel- chairs.

Semi-Ambulatory Disability

Means impairments that cause individuals to walk with difficulty or insecurity. Individuals using braces or crutches, amputees, arthritics, spastics, and those with pulmonary and cardiac ills may be semi- ambulatory.

Sight Disability

Means total blindness or impairments affecting sight to the extent that the individual functioning in public areas is insecure or exposed to danger.

Wheelchair

Means chair used by people with a disability for mobility.

40. Dharamshala

A building devoted to religious or charitable purposes offering lodging and/or dining facilities for interested individuals or group of people at a nominal charge, or in some cases free of charge.

41. Domestic Waste Water

Means either waste water that is typically discharged from premises that are used solely for residential activities or waste water of the same character discharged from other premises.

42. Ground Coverage

Means the ground area covered by a building including cantilevered portion on any floor, excluding cut-out (open-to-sky) if any. pedestrian movement shall not be included in the covered area. The areas covered by the porch, service ducts, private garage not exceeding 25 sq. meters on ground floor, podium, stilt, staircase, fire escapes, ramps, mechanized parking areas, refuse chutes, two watchmen huts and one pump room each not exceeding 6 sq

meters, atrium if not used for commercial activities and lift wells shall not be included in the covered area;

43. Floor Space Index

Means the quotient of the ratio of the combined gross built-up area of all floors, to the total area of the Plot.

44. Permissible F.A.R

Means the basic F.A.R permitted by the Competent Authority as a matter of right.

45. Base F.A.R

Means the base F.A.R permitted in a Base Zone by the Competent Authority as a matter of right.

46. Chargeable F.A.R

Means the F.A.R available by payment

47. Maximum Permissible F.A.R

Means the maximum permissible F.A.R which includes permissible F.A.R and Chargeable F.A.R.

48. Fire separation

Means the distance in meters measured from any other building on the site or from other site, or from the opposite side of a street or other public space to the building

49. Front

Means the main frontage of a Building-unit on the road-side. For Building-units abutting two



Figure 65 Frontage of Plot

or more roads, the side along the wider road shall be considered as the front.

50. Front open space or front marginal open space (FMOS)

Means an open space across the front of a plot;

51. Implementing Agency

Means Indore Smart City Development Limited (ISCDL)

52. Lift or escalator

Means an appliance designed to transport persons or materials between two or more levels in a vertical or substantially vertical direction by means of a guided platform;

53. Loft

Means an intermediary floor between two floors which is constructed for storage purposes;

54. Mezzanine floor

Means an intermediate floor, between ground floor and first floor;

55. Multiplex

Means a building consisting of two or more cinema halls with or without shopping area;

56. Open space

Means an area forming an integral part of the plot left open to sky;

56. Parapet

Means a low wall or railing built along the edge of a roof or a floor;

57. Parking floor

Means a floor designed for the use as a parking space;

58. Parking space

means an area enclosed or unenclosed, covered or open, sufficient in size to park vehicles together with a driveway connecting the parking space with a street or an alley and permitting ingress and egress of the vehicle.

59. Permission

Means an authorization in writing by the authority to carry out work of development or building and regulated by these rules, which would be unlawful otherwise.

60. Plinth

Means the portion of the structure between the surface of the surrounding ground and surface of the floor immediately above the ground.

61. Plinth area

Means the built up covered area measured at the plinth level

62. Rear Open Space or Rear Marginal Open Space (RMOS)

Means an open space across the rear of a plot between the rear of the building and the rear boundary of the plot.

63. Row housing/ row type building

Means a row of buildings with only front and rear Marginal Open Space or interior open spaces.

64. Sanctioned plan

Means the set of plans and specifications related to the development of land or construction of buildings which has been duly approved and sanctioned by the Authority with or without conditions;

65. Semi-detached building

Means a building detached on three sides.

66. Service floor

Means a covered floor specially provided for diverting/ repairing/ managing the building services like electricity/ sewage/ water supply/ drainage/ air conditioning lines and does not extend beyond the limits of the floor immediately below.

67. Set back line

Means a line laid down in each case by the Authority usually parallel to the plot boundaries beyond which nothing can be constructed towards the site boundaries, except permissible projections.

68. Shopping Mall

Means integrated multi-storied shopping centre where commercial activity is carried out along with sufficient public spaces, amenities, security arrangements and parking as required in these rules.

69. Side Open Space or Side Marginal Open Space (SMOS)

Means an open space across the side of the plot between the side of the building and the side boundary of the plot.

70. Street

means any means of access namely highway street, lane pathway, alley, stairway, passageway, carriageway, footway, square place or bridge, whether a thoroughfare or not over which the public have a right of passage or access, or have had access uninterruptedly whether existing or proposed in any sanctioned plan or co-ordination plan or Development/ Zoning Plan and includes all bunds, channels, ditches, storm water drains, culverts, sidewalks, traffic islands roadside trees and hedges retaining walls, fences barriers and railings within the street lines.

71. Street level or grade

Means the officially established elevation or grade of the central line of the street upon which a plot fronts and if there is no officially established grade, the existing grade of the street at its mid-point.

72. Street line

Means the line defining the side limits of a street.

73. To Abut

A plot or land or building is said "to abut" a road or a street, if a portion of the plot or land or building touches the road or street edge;

74. Travel distance

Means distance from the remotest point on a floor of a building to a place of safety, whether it is vertical exit, or a horizontal exit to an outside exit measured along the line of travel.

8.5 Land-Use Zoning

8.5.1 Land-Use & Uses Permitted

The Proposed Land-use Plan in Map no. 1 depicts the land uses of a given land parcel.

8.5.2 Proposed Zoning

Table 22 Proposed Zoning

Sr. No.	Land-Use	Code	Broad Description
1.	Residential	R	In this land-use, land parcels will be only for residential use in the ABD area having primarily detached /semi-detached dwelling /Multi-dwelling units.
2.	Residential - Commercial Land-use (R-C Land-use)	R-C	The Residential-Commercial land-use is a mixed-landuse, with residential use as the predominant and where Commercial uses are permitted only on Ground floor or as mentioned in these regulations.
3.	Commercial use (C Land-use)	C	The Commercial-Residential land-use is a mixed-landuse, where commercial use as the predominant, residential use and certain types of manufacturing uses are also permitted.
4.	Urban Heritage	UH	Those buildings, artifacts, structures and/or precincts of historical and/or aesthetical and/or architectural and/or cultural value (hereinafter referred to as listed Buildings/Heritage Buildings and listed precincts/ Heritage precincts) as marked on the Land Use Plan.

5.	Recreational Land-Use	G	This land-use is primarily meant for green open spaces such as parks and gardens in the city with minimal development which is limited to maximum F.AR. of 0.05 and a maximum permissible height of 6mts.
6.	Transport	T	This land-use is meant for roads, bus-stands, bus-terminal, Parking, railway station, railway line & airport.
7.	Environmentally Conserved Green area	CG	It is an environmentally conserved land-use where no building construction is permitted like river & green buffer.
8.	Public Semi-Public & Public-Utilities & Facilities	PSP	This land-use is meant for land parcels which are reserved or in-existence for public purposes and are to be developed for public purposes & utilities also could be redeveloped.

8.5.3 Permissible & Non-Permissible Uses as per Use-Zones

Table 23 Permissible & Non-permissible Uses as per-Zone

P- Permissible, NP- Not permissible, CA - Uses Permissible on approval by Competent Authority.

(Only following list of Activities are Permissible & Non-Permissible for the ABD Area.)

S.no	Activities	Use-Zones					
		R-Zone	R-C Zone	C-Zone	Recreational Zone	Transportation	PSP
1	Apartment	P	P	CA	NP	NP	NP
2	Residential plot/Plotted housing	CA	CA	CA	NP	NP	NP

S.no	Activities	Use-Zones					
		R-Zone	R-C Zone	C-Zone	Recreational Zone	Transportation	PSP
3	Group housing/row housing/Cluster housing	P	P	CA	NP	NP	NP
4	Children home	P	P	P	NP	NP	P
5	Old age home	P	P	CA	NP	NP	CA
6	Beauty parlours	P	P	P	NP	NP	NP
7	Gymnasium	NP	P	P	CA	NP	CA
8	Open/Play ground	P	P	P	P	NP	P
9	Hotels	NP	P	P	NP	CA	CA
10	Whole Sale Market	NP	NP	P	NP	NP	NP
11	C & F Agencies	NP	NP	P	NP	NP	NP
12	F.M.C.G. Godowns	NP	NP	P	NP	NP	NP
13	Paper stationary/ Block Market	NP	NP	P	NP	NP	NP
14	Automobile & Spare part market	NP	NP	P	NP	NP	NP
15	Gold, Silver market/Crockery market	NP	CA	P	NP	NP	NP
16	Retail Shops*	P	P	P	CA	CA	NP
17	Repair/ Service Shop	CA	P	P	P	P	NP
18	Weekly Market /Haat bazaar	NP	CA	P	NP	NP	NP

S.no	Activities	Use-Zones					
		R- Zone	R-C Zone	C- Zone	Recreational Zone	Transport ation	PSP
19	Conference hall	NP	P	P	NP	NP	P
20	Shopping malls/Multiplex	NP	NP	P	NP	NP	NP
21	Super market /Departmental Stores	NP	CA	P	NP	NP	NP
22	Call centres	NP	NP	P	NP	NP	NP
23	Bank	CA	P	P	NP	NP	P
24	ATM	CA	P	P	NP	P	P
25	Cinema	NP	NP	P	NP	NP	NP
26	Fuel Filling Stations	NP	P	P	NP	P	CA
27	Auto Service Stations	NP	P	P	NP	NP	NP
28	Vocational Trg. Institute	NP	P	P	NP	NP	CA
29	Coaching Institute	NP	P	P	NP	NP	CA
30	Marriage gardens	NP	NP	CA	NP	NP	NP
31	Warehousing/Storage other than Agricultural products	NP	NP	P	NP	NP	NP
32	I.T Industry	NP	NP	CA	NP	NP	NP
33	Stone crusher / Mining Quarry	NP	NP	NP	NP	NP	NP
34	Hostels	CA	P	CA	NP	NP	CA

S.no	Activities	Use-Zones					
		R-Zone	R-C Zone	C-Zone	Recreational Zone	Transportation	PSP
35	Working women hostel	CA	P	CA	NP	NP	CA
36	Rest house	CA	P	CA	NP	NP	P
37	Lodging houses	NP	P	CA	NP	NP	P
38	Guest houses	NP	P	CA	NP	NP	P
39	Night Shelter	CA	P	CA	NP	NP	P
40	Community hall	NP	P	P	NP	NP	P
41	Pre primary School/nursery school/Primary School	P	P	CA	NP	NP	P
42	Secondary School/Senior Sec. School	NP	P	CA	NP	NP	P
43	Above 100 Bed Hospital	NP	NP	P	NP	NP	P
44	Hospital 30-100 Beds	NP	P	P	NP	NP	P
45	Hospital 0-30 Beds	NP	P	P	NP	NP	P
46	Naturopathy Center	NP	P	NP	NP	NP	P
47	Health Center	NP	P	P	NP	NP	P
48	Nursing home	CA	P	P	NP	NP	P
49	Poly clinic/clinic	CA	P	P	NP	NP	P
50	Pet clinic	NP	P	P	NP	NP	P
51	Physiotherapy centres	NP	P	P	NP	NP	P
52	Govt. & Semi Govt.	CA	P	P	CA	NP	P

S.no	Activities	Use-Zones					
		R- Zone	R-C Zone	C- Zone	Recreational Zone	Transport ation	PSP
53	Professional offices /chambers norms	NP	P	P	NP	NP	P
54	Police Station/chowki	P	P	P	CA	P	P
55	Post offices	P	P	P	NP	NP	CA
56	Museum /Art Gallery	NP	CA	CA	CA	NP	P
57	Community center	NP	P	P	NP	NP	P
58	Library	NP	P	P	NP	NP	P
59	Science centres	NP	NP	P	NP	NP	P
60	Exhibition/Convention Centres	NP	NP	P	NP	NP	P
61	Bus Stop/Pick up station	NP	P	P	P	P	P
62	Parking Lots	P	P	P	P	P	P
63	Swimming Pool	CA	CA	P	CA	NP	P
64	Stadium	NP	NP	NP	NP	NP	P
65	Floriculture	NP	NP	NP	P	NP	NP
66	Nursery	NP	NP	NP	P	NP	NP
67	Telephone Exchanges	NP	NP	P	NP	NP	P
68	Wireless Stations	P	P	P	NP	P	P
69	Fire station	NP	P	P	NP	P	P
70	Telecom tower &	NP	P	P	P	P	P

S.no	Activities	Use-Zones					
		R-Zone	R-C Zone	C-Zone	Recreational Zone	Transportation	PSP
71	Waste Water Treatment Plant	NP	NP	CA	CA	NP	P
72	Sewage treatment plant	CA	CA	NP	CA	NP	P
73	Water Storage tanks & pumping Station	P	P	P	CA	CA	P
74	Sewage pumping station	P	P	P	CA	NP	P
75	Water treatment plant	NP	NP	P	CA	NP	P
76	Cremation/burial ground	NP	NP	NP	NP	NP	CA
77	Electric Sub-station	CA	P	P	P	P	P
78	Utensil/Crockery market	NP	NP	P	NP	NP	NP
79	Kirana market	NP	NP	P	NP	NP	NP
80	Cloth Market	NP	NP	P	NP	NP	NP
81	Grain Market	NP	NP	P	NP	NP	NP

**Retail Shops:*

a) *In R zone, non-residential activities shall only be permissible on Ground floor and as mentioned in regulation no. 8.6.1.2*

b) *The below mentioned shall be categorized as Retail Shops;*

i. *Bakery/Confectionaries items*

- ii. *Grocery/General Store*
- iii. *Dairy Products*
- iv. *Stationary/Books/Gifts/Book binding*
- v. *Cyber Café/Phone booth*
- vi. *L.P.G. booking office/ L.P.G showroom excluding cylinder*
- vii. *Pan shop*
- viii. *Laundry/Dry-cleaning/Ironing Shops*
- ix. *Sweet Shop/Tea Shop excluding seating provisions*
- x. *Chemists/Medicine Shops*
- xi. *Optical Shops*
- xii. *Home Appliances/ Electronic Repair Shop*
- xiii. *Photo Studio*
- xiv. *Cable/DTH office*
- xv. *Cycle Repair Shops*
- xvi. *Under Public Distribution System Shops for Ration & Kerosene Distribution Shops*
- xvii. *Vegetables/Fruits/Flower Shops*
- xviii. *Photocopy/Fax/STD-PCO*
- xix. *Haircutting Salon/ Beauty Parlor*
- xx. *Tailor Shop/ Boutique*

Notes:

1. No development shall be permitted in area designated for water body, pond and talav excluding Riverfront Development. Margins to be maintained from a designated water body shall be as per Regulation no. 8.9 of these regulations.
2. The land designated for public purposes as shown on the Map no 1 the uses shall be permissible as per the requirements of concerned department.
3. For all Zones,
 - a) if the line of a Zone divides a Building unit, the maximum permissible F.A.R. available on either part of such Building-unit shall be as per the respective Zones.
 - b) Such a Building-unit may be developed separately as per the regulations of the Respective Zones or as a contiguous development utilizing the combined maximum permissible F.A.R. in the part of the building unit which lies in the Zone with higher F.A.R.
4. Public-Semi-Public and Public Utilities & Facilities shall be permitted in any Zone.

8.5.4 Circumstances Under Which Existing Non-Conforming Uses Will Be Allowed to Continue.

Existing non-conforming uses may continue in the following circumstances,

- a) Any lawful use of land or building premises existing before coming in to force of these Regulations may be allowed to continue, if it does not conform to the use provisions of these Regulations provided that such non-conforming use is not extended or enlarged.
- b) In case a building accommodating any non-conforming use, collapses or is pulled down or is dismantled, any new building on such site shall conform to these Regulations and to the land-use prescribed in these Regulations.

- c) In case of alteration work in a building, the permission shall be given only after giving setbacks and building line for proposed roads as per the Land use Plan (Map no. 1) & Proposed road Network Plan (Map no. 2)

8.6 Regulations For Zones – R, RC, C

The following regulations are applicable for the following zones: Residential Zone (R); Residential-Commercial Zone (R-C); Commercial Zone (C); Public-Semi-Public (PSP).

8.6.1 Permissible Uses

8.6.1.1 Permissible Uses for Residential Zone (R), Residential-Commercial Zone (R-C) & Commercial Zone (C)

- Permissible uses & Non-Permissible uses shall be as per Planning Regulation no. 8.5.3 above.
- *In R zone, non-residential activities shall only be permissible on ground floor.*

8.6.1.2 Applicable Zones as per Road width

1. The types of uses permissible on a land parcel shall be regulated according to the width of the road on which it abuts as under:

Table 24 Applicable Zones as per Road widths

S.No.	Road Width	Applicable Zones & their respective Building Uses as indicated in the Permissible Uses as per Regulation no. 8.5.3)
1.	Less than 9 mts	R, R-C, T, G
2.	9mts and Less than 12mts	R, R-C, T, UH, G
3.	12mts and less than 18mts	R-C, C, PSP, T, UH, G
4.	18mts and less than 24mts	C, PSP, T, UH, G
5.	24mts and less than 30mts	C, PSP, T, UH, G

6.	30mts and more	C, PSP, T, UH, G
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2. The extent of commercial uses permissible on a Land parcel in all Zones except Commercial Zone shall be regulated according to the width of the road on which it abuts as under:

Table 25 Permissible Commercial Use as per floor Level

S.No.	Road Width	Floors on Which Commercial Use is Permissible
1.	Less than 9mts	Ground Floor Only
2.	9mts and Less than 18mts	Ground and First Floor Only
3.	18mts and above	All Floors

Special Note-

1. In Case of Commercial / Specialized market as Listed below C Zone will be applicable irrespective of Road width mentioned in Table 24

List of Specialized market

S.no	Market Description	S.no	
1	Bohra bazar	10	Morsali Gali
2	Chota Sarafa	11	Imli Bazar
3	Ada Bazar	12	Cloth Market
4	Bartan bazar	13	Malharganj Gali No 1,2,3
5	Sahathan Bazar		
6	Marothiya bazar		

7	Shakkar Bazar		
8	Yashoda mandir Rd		
9	Subhas Chowk parking Rd		

8.6.2 Development of Land

8.6.2.1 Amalgamation of Land-parcel

Amalgamation of Land-Parcel shall be permitted if depth of the resultant land-parcel does not exceed three times the frontage of the resultant land-parcel abutting on road.

8.6.2.2 Development on kabrastan, burial ground etc.

The land occupied by the graveyards, kabrastans, burial grounds, crematoria and allied actions in the Smart City Land use Plan shall be kept permanently open. Competent Authority may permit structures to be built for specific purpose.

8.6.3 Permissible Floor Area Ratio (FAR) For R, RC & C

1. The base FAR for zones R, RC & C shall be 1.5 or as mentioned in table 26 below.
2. Additional FAR purchasable Shall be as per table 26 below.
3. The Permissible F.A.R shall comprise Base F.A.R, TDR and Premium F.A.R as prescribed in table 26 below;

Table 26 FAR Table

FAR Table as Per Road Width			
S.no	Road Width (ROW)	Base F.A.R. (as per Indore Development Plan 2021)	Additional F.A.R. (50% TDR* & 50% Premium)
1.	Below 18 meter	1.5	As per TDR Policy
2.	18 meter	1.5	
3.	24 meter	1.5	
4.	30 meter	1.5	

Note:

- a) *In cases where building proposal approved prior to these Regulations are proposed to avail the balance development rights not exceeding the Total permissible FAR as per these regulations shall be permitted by utilizing the TDR and by payment of Premium.*
- b) *In case of land parcels affected by the road widening or land acquisition for public purpose uses, the owner shall have right to use TDR provided in form of compensation as an additional F.A.R. of the surrendered land, on the same land/building parcel or shall be allowed to sell the F.A.R. as per TDR policy.*
- c) *In case if TDR is not available through private owner then plot owner will have an option to avail additional FAR through FAR premium provided by IMC.*

8.6.3.1 Relaxation in Floor Area Ratio (FAR)

In case of Building-units affected by road widening or construction of new road, the owner may claim FAR from the Competent Authority as a compensation for the surrendered land. In case of FAR, the Competent Authority shall permit the FAR of any such land / plot or Building-unit on the basis of the original boundary of the Building Unit. This is subject to conformity with all other requirements mentioned in these Regulations as per the new boundary. Before securing Development Permission on any such Building-units, owner shall have to surrender the affected land which shall be calculated as follows;

Compensation as TDR = Surrendered Land (sqm) x Base F.A.R. x 2

8.6.3.2 Areas not counted towards computation of FAR

Following areas shall not be counted towards computation of FAR:

1. The area under lift wells, service ducts, machine room for lifts, water tanks, escalator, lift lobby, fire escapes, ramps, refuse chutes and service ducts.
2. Mezzanine floor, parking areas, parking floors, mechanized parking areas, porch, service floors, podiums.
3. Private garage (not exceeding 16.5 sq. mtrs.)
4. Servant quarter (not exceeding 16.5 sq. mtrs.)
5. Basement if used for parking
6. Corridors, arcades, lobbies, mump tee, staircases, entrance lobbies or foyers, atrium which is not used for commercial activity, pump room and two watchmen hut each not exceeding 6 sq. meters.
7. Provided that in commercial use premises, the area of foyer(s) or entrance lobby(s) located on the ground floor which exceeds 20% of permissible ground coverage shall be counted in the FAR

8.6.4 Building Height

8.6.4.1 Maximum Permissible Height

The Maximum Permissible Building Height shall be as per provisions in table 27 and regulated according to the width of the road on which it abuts as prescribed below:

Table 27 Maximum Permissible Height

S.No.	Road Width	Maximum Permissible Building Height	Minimum Frontage of plot	Minimum Plot area
1.	Less than 9 m	9.0 m	-	-
2.	9 m	12.0 m	-	-
3.	12 m & 15 m	18.0 m		
4.	18 m	24.0 m	18.0 m	1000 Sqmt
5.	24 m	30.0 m	24.0 m	1500 Sqmt
6.	30 m	45.0 m	30.0 m	2000 Sqmt

8.6.5 Margins

8.6.5.1 Road Side Margins for Residential and Non-Residential Uses

The margins for any building development shall be as per table below.

Table 28 Marginal open space as per plot & Road Widths

Marginal Open Space as per Plot & Road Widths					
Plot Width	Road width/ ROW	Minimum Open Space (MOS)			
In Meter	In Meter	Front (Road Side)	Side	Side	Rear
Less than 12 mt	4.5 mt	0.75 mt	nil	nil	1.2 mt
12 mt – upto 18 mt		0.75 mt	1.5 mt	nil	1.2 mt
Above 18 mt		0.75 mt	1.5 mt	1.5 mt	1.2 mt
Less than 12 mt	6 mt	1 mt	nil	nil	1.2 mt
12 mt – upto 18 mt		1 mt	2	nil	1.2 mt
Above 18 mt		1 mt	1.5 mt	1.5 mt	1.2 mt
Less than 12 mt	7.5 mt	1.5 mt	nil	nil	1.2 mt
12 mt – upto 18 mt		1.5 mt	2.5	nil	1.2 mt
Above 18 mt		1.5 mt	2 mt	2 mt	1.2 mt
Less than 12 mt	9 mt	1.5 mt	nil	nil	1.2 mt
12 mt – upto 18 mt		1.5 mt	3 mt	nil	1.2 mt
Above 18 mt		1.5 mt	2.5 mt	2.5 mt	1.2 mt
Less than 12 mt	12 mt	2 mt	nil	nil	1.5 mt
12 mt – upto 18 mt		2 mt	3 mt	nil	1.5 mt
Above 18 mt		2 mt	2.5 mt	2.5 mt	1.5 mt
Less than 12 mt	15 mt	2.5 mt	nil	nil	1.5 mt
12 mt – upto 18 mt		2.5 mt	3 mt	nil	1.5 mt
Above 18 mt		2.5 mt	2.5 mt	2.5 mt	1.5 mt
Less than 12 mt	18 mt	3 mt	nil	nil	2 mt
12 mt – upto 18 mt		3 mt	3 mt	nil	2 mt
Above 18 mt		3 mt	2.5 mt	2.5 mt	2 mt
Less than 12 mt	24 mt	3.5 mt	nil	nil	2 mt
12 mt – upto 18 mt		3.5 mt	3 mt	nil	2 mt
Above 18 mt		3.5 mt	2.5 mt	2.5 mt	2 mt
Less than 12 mt	30 mt	4 mt	nil	nil	2 mt
12 mt – upto 18 mt		4 mt	3 mt	nil	2 mt
Above 18 mt		4 mt	2.5 mt	2.5 mt	2 mt

Notes:

1. Road Side Margin in a Land-Parcel shall be regulated by the Road width it abuts on as mentioned in the table no. 28 above (subject to other Regulations):
2. For Redevelopment parcels, sides & Rear Margins shall be minimum of 6m or 1/3rd of the abutting building height whichever is higher.
3. For Land-Parcel with two or more abutting roads, the Road-side margin shall be applicable on all such abutting sides as illustrated below:

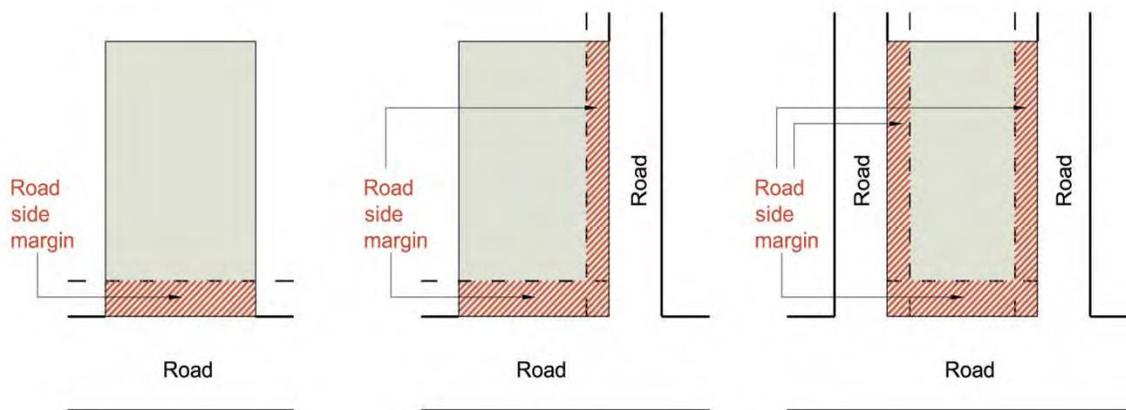


Figure 66 Road Side margin

8.6.5.2 Build-to-Line

1. The Build-to-Line shall be considered as the imaginary line formed after leaving the Front (Road Side margin) as governed by the road width mentioned in table no. 28 above.
2. This Regulation shall be applicable for all Land-Parcels as mentioned in Smart City Area Detailed Plans.

8.6.5.3 Side and Rear Margins

The minimum Side and Rear (all other than Road side) Margins on a Land-Parcel shall be regulated on the basis of the plot width and proposed road widths as indicated in Regulation no. 8.6.5.1

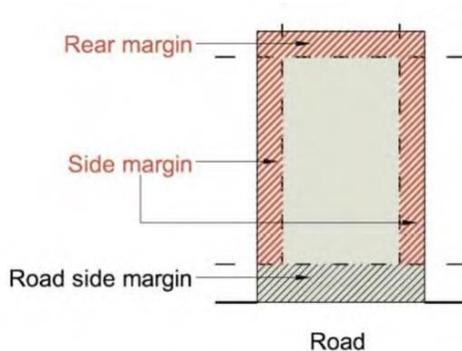


Figure 67 Side and Rear Margins

8.6.5.4 Permissible Uses in Margins

1. Residential Zone

- a. Ancillary uses such as parking garage, servant quarter shall be permitted as a part of the permissible FAR of the Building Unit, in side or rear marginal space but in no case in Road-side margins; with maximum permissible ground coverage of 16.5 sq.mts and maximum permissible height of 3.0 mts.
- b. Open, cantilever staircase with maximum width of 1.00mts and landing space of maximum 2.00 Sqmts at floor level shall be permitted in side or rear margins except on road side margin.
- c. Doors, windows or projections shall not be permitted along the common wall of the adjoining property.
- d. No rainwater from the roof shall be drained in the adjoining property.
- e. Partition wall shall be allowed along the Building Unit boundary on common boundary of semi-detached building and on marginal space between two structures up to a maximum height of 1.5mts.

2. For Residential Zone Building Uses: Underground water tank, percolation well, bore well and pump room with a maximum size of 2mts X 2mts and with a maximum depth of 2mts.
3. Vehicular Ramp connecting ground level with basement level shall be permitted in side and/ or rear margin only.
4. For a building-unit using marginal space for providing electrical infrastructure such as substation (as per Regulation no. 8.6.5.4(5), underground water tanks shall be allowed on only one marginal side except Road-side margin. The other marginal spaces shall be kept clear and accessible at ground level.
5. Electrical Infrastructure: Electrical Sub-station, Transformer room, Box-type transformer, Section Feeder Pillar, Auxiliary Power Back-up System and meter room according to the norms of the Competent Electric Company shall be permitted in marginal space except Road-side margin of the Building-unit. The area of such construction shall not be counted towards FAR.
6. Fire Escape Staircase for Building with height more than 45mts: Fire Escape Staircase required as per Bhumi vikas Niyam 2012/National Building Code 2016 shall be permitted in marginal space except road-side margin.
7. Pedestrian Ramp: as per Bhumi vikas Niyam 2012/National Building Code 2016 shall be permissible in marginal space.
8. Parking shall be permitted in margins except in Approach Road as illustrated below & as per Regulation no 8.6.8.1 (7 & 8).

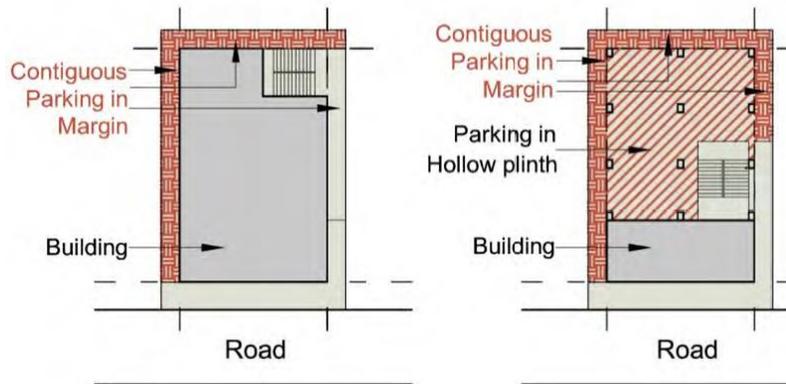


Figure 68 Parking permitted in margins

9. Basement provided as per Regulation no. 8.6.7 shall be permitted within side and rear margins.
10. In any marginal open space, weather sheds sun breakers horizontal or vertical projections shall be permitted up to 0.60mts. These projections may also be part of the façade articulation at various levels, but shall in no cases be at the floor level such that they become a part of the habitable space. Such projections shall be allowed above a minimum height of 2.4mts from the ground level.

8.6.5.5 Restricted Use in Margins

1. The required marginal open spaces except permissible uses as per Regulation 8.6.5.4 shall be kept permanently open to sky.
2. This space shall not be used for stocking materials or loose articles for the purpose of trade or otherwise, putting up fixed or movable platforms.
3. Parking shall not be allowed in the marginal space provided as approach road.
4. Vehicular ramp leading to parking in floors above ground level shall not be permitted in the margin.
5. Pedestrian ramps connecting ground floor with upper floors shall not be permitted in the marginal spaces.

8.6.6 Permissible Ground Coverage

For R, R-C, C Zones, the permissible ground coverage shall be as per MoS mentioned in Table-28 under section 8.6.5.

Note:

- a) The same coverage will be allowed on first floor only. For other floors, the floor plate shall reduce by 20% of ground coverage and restricted upto maximum coverage as mentioned in the table below.
- b) At the time of permission, for front setback Table 39, 40, 41, 42, 43 and 44 shall be referred.

Table 29 Permissible Ground Coverage

Maximum Ground Coverage	
Plot Size	Maximum Ground Coverage
(In Sqmt.)	
0- 500	70%
501-1000	60%
More than 1000	50%

8.6.7 General Basement Requirements

In a Building-unit, the Basement shall be permitted on the following conditions.

8.6.7.1 Margins

1. Basement shall be permitted on plot abutting Minimum Road width 18 mt or above.
2. Basement shall be permitted on plot having minimum plot width 18mt or more, minimum plot depth 20mt or more.
3. No Basement shall be permitted in the required Road side marginal space.
4. The side and rear side margins for the basement shall be as per Regulation no. 8.6.5.1.

8.6.7.2 Height of Basement

Maximum Height of the Basement shall be 3.8mts from finished basement floor level to finished upper floor level and minimum height shall be 2.8mts from finished basement floor level to beam bottom level.

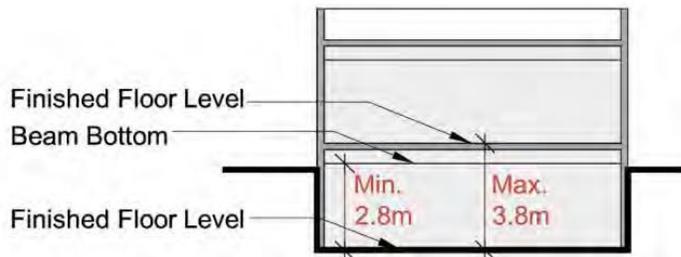


Figure 69 Height of Basement

8.6.7.3 Permissible Uses in Basement

1. Permitted uses in Basement are: parking, safe deposit vault, A.C. Plant, storage other than inflammable material, Sewage Treatment Plant.
2. No habitable use shall be permitted in the basement.
3. Permitted uses in Basement of a Hospital Building: Radiation-producing device, Radiation Therapy Room, MRI or X-Ray room. This shall be permissible only if the basement layout is not shown as parking while approval.
4. For basements exclusively for parking, any other permissible use is permitted only in basement level-1 up to a maximum area of 10% of the total built-up area of the basement floor. This non-parking area shall be calculated towards the computation of FAR.

8.6.8 Parking

8.6.8.1 Private Parking (On the plot)

8.6.8.1.1 General Requirements for Parking

1. Parking requirement for a Mixed-Use development shall be calculated on prorated basis of the FAR consumed specific to the different uses.
2. Parking is permitted at any floor level above ground and at more levels or basement as per required parking, with provision of vehicular ramp/mechanized means/car lifts.
3. 50% of the required visitors parking shall be provided at the ground level.
4. Parking area includes parking space, driveway and aisles but excludes approach road, vehicular lift and vehicular ramps.
5. Parking layouts with minimum size requirements for parking space, driveways and access lanes shall be provided as prescribed in Bhumi Vikas Niyam 2012/National Building Code 2016.
6. Parking shall be permitted in side or rear margins except in Approach Road as per Regulation 8.6.5.5 above.
7. Parking area should be retained as effective parking space and shall be maintained with light and ventilation system if provided in an enclosed area.
8. In cases where misuse of parking space is noticed, the use of the entire building shall be discontinued by the Competent Authority. Building use shall be permitted only after the required parking spaces are provided. High penalty shall be levied considering the period of misuse of the parking space and the benefit derived out of misuse as decided by the Competent Authority from time to time.
9. If parking is provided on a terrace with vehicular elevator, vehicular ramp is not necessary if parking space is provided with provision of floor sprinklers.
10. Parking shall not be permitted within an Atrium.

11. At the time of approval an agreement /affidavit regarding the areas in basement/stilts/open shown for parking shall be furnished by the applicant to Town and Country Planning and/or Indore Municipal Corporation mentioning that aforesaid part (parking) shall not be sold to anybody and it shall remain for parking only, this area shall remain in joint possession of the occupants of the building. In case of violation Municipal Corporation will be authorized to demolish any such construction with or without prior notice.

8.6.8.1.2 General Space Requirement

1. Location

The parking spaces can be provided in basement or on a floor supported by stilts or on upper floors/podium and uncovered spaces in a plot. However, no parking spaces will be permitted in the marginal open spaces as required to be provided as per Regulation No. 8.6.5.4 & 8.6.5.5.

2. The deck parking inclusive of car lifts & passages shall be counted in FAR.

3. Area of Parking Space: The area of parking spaces shall be provided as given below:

Table 30 Parking requirements

S.no.	use	Parking requirement
1	Residential	i. 25 – 50 sqmt – 0.5 ECS ii. 50 – 100 sqmt – 1 ECS iii. Above 100.00 sqmt -2 ECS per 100 sqm
2.	Education	
	Primary / Secondary school	1. For the Administrative & public Area of the School 1.5 ECS per 100 Sqmt builtup area or part thereof

		2.For Every3 Class Room - 1 LCV
	College	1. For the Administrative & public Area of the School 1.5 ECS per 100 Sqmt builtup area or part thereof 2.For Every 3 Class Room - 1 LCV & 1 ECS
	Coaching Classes	For every 20 Student - 1 ECS
3.	Health	1. 1.0 ECS per 75 Sqmt builtup area or part thereof 2. 10% extra for visitors
4.	Govt. / Semi Govt. & Private offices	1. 1.0 ECS per 75 Sqmt builtup area or part thereof 2. 10% extra for visitors
5	Commercial	1. 1.0 ECS per 50 Sqmt builtup area or part thereof 2. 50% extra for visitors

Note:

- In case if it is not feasible to provide the required parking as per above table due to any constraint, the Competent Authority may recover fees for deficit parking & regulation no. 8.6.8.1.4 & 8.7.4 below shall be applicable. The fee shall be decided by the Competent Authority and revised from time to time
- ECS value shall be taken as:

S N	On Ground	Basement		Stilts		Podium		Mechaniz ed	Rotating
		Without Stalk	With Stalk	Without Stalk	With Stalk	Without Stalk	With Stalk		
1	25 Sqmt	35 Sqmt	16 Sqmt	30Sqmt	15 Sqmt	35 Sqmt	16 Sqmt	16 Sqmt	5 Sqmt

8.6.8.1.3 Basement parking

- **For Two-wheeler**

- i. Basement parking shall be permitted on plot abutting Minimum Road width 18 mt or above.
- ii. Basement parking shall be permitted on plot having minimum plot width 18mt or more & minimum plot depth 20 mt or more.
- iii. Front, side & Rear Margins for Basement parking shall be as per Regulation 8.6.5.1, 8.6.7.
- iv. Minimum Ramp width (both way) shall be 4 mt & minimum Ramp slope 1:8
- v. Minimum Two-wheeler bay size shall be 1 m x 2 m.
- vi. Lower Basement Shall be permissible.
- vii. Maximum two number of levels of basement shall be permissible subject to mechanical ventilation as per provisions in National Building code - 2016, water proofing and structural safety.
- viii. The height of basements from floor to ceiling shall be as per Regulation no. 8.6.7.2.
- ix. Height of first basement above ground level will be maximum 1.5 mtrs below the roof slab. Where stilt or podium parking is permitted, the first basement roof will be levelled with the ground.
- x. The ramp within setbacks shall be permissible subject to free and convenient movement of fire tender.
- xi. Adequate fire safety, light and ventilation and air change through mechanical means shall be provided as per provisions in National Building Code, 2016.
- xii. Permissible uses in basements shall be as per Regulation no. 8.6.7.3

xiii. Basement parking can also be Mechanized instead of conventional ramps.

- **For Four-wheeler**

- i. Basement parking shall be permitted on plot abutting Minimum Road width 18 mt or above.
- ii. Basement parking shall be permitted on plot having minimum plot width 18mt or more & minimum plot depth 20 mt or more.
- iii. Front, side & Rear Margins for Basement parking shall be as per Regulation 8.6.5.1, 8.6.7.
- iv. Minimum two ramps (separate ramps for entry and exit) should be provided with width 4 mt one way & minimum Ramp slope 1:8 for straight type ramp, 1:10 for ramp with turns.
- v. Minimum drive way 4.5 mt for one-way circulation, 6mt for two way circulation.
- vi. Minimum Four-wheeler bay size shall be 2.5 m x 5 m.
- vii. The height of basements from floor to ceiling shall be as per Regulation no. 8.6.7.2.
- viii. Height of first basement above ground level will be maximum 1.5 mtrs below the roof slab. Where stilt or podium parking is permitted, the first basement roof will be levelled with the ground.
- ix. The ramp within setbacks shall be permissible subject to free and convenient movement of fire tender.
- x. Adequate fire safety, light and ventilation and air change through mechanical means shall be provided as per provisions in National Building Code, 2016.
- xi. Permissible uses in basements shall be as per Regulation no. 8.6.7.3

- xii. Basement parking can also be Mechanized instead of conventional ramps.
- xiii. Combination of two-wheeler & four-wheeler vehicle parking Shall be allowed.

8.6.8.1.4 Common Parking Space

If the total parking space as required by these Regulations is provided by a group of property owners for their mutual benefit within a distance 500 meters from their property, such common use of space for parking may be construed as meeting the off-street parking requirements under these Regulations subject to the approval of the Commissioner. If such common parking space is proposed for a group of buildings the owners of such buildings shall submit a layout thereof and also a registered undertaking stating that the area earmarked for the parking space will not be built upon and will be utilized for parking purpose only.

8.6.8.1.5 Parking for Non-Motorized Vehicular Zone (NMV Zones)

For NMZ Zones marked in fig 53 required parking space shall be provided as per Regulation no. 8.6.8.1.2 in the premises itself. If the required parking space cannot be provided, then plot owners can pay parking facility charges as per Regulation no. 8.7.4

8.6.8.2 Public Parking

8.6.8.2.1 On-Street Parking Regulations

For Four-wheeler & two-wheeler

Table 31 Dimension for car bays

S.No.	Types of parking	Clear width From Kerb (mt)	Length required for each car measured parallel to the Kerb Line (mt)
1.	Parallel	2.5	5.0
2.	30 degrees	4.66	5.0

Note:

- These On- street parking Regulation shall be applicable on Street having ROW 18 mt or more than 18 mt.
- The general dimension for a four-wheeler bay are taken as 2.5 meters by 5 meters, same bay can park 4 nos of two wheelers (Bay size 1 m by 2 m).

8.6.8.2.2 Off-Street Parking Regulations

a) Multi-Level Parking with Conventional Ramp

- **For Two wheeler parking**

- i. Minimum plot size = 200 sq.mtrs.
- ii. Minimum width of road = 9 mtrs.
- iii. Maximum height shall be as per Regulation no. 8.6.4.
- iv. In the areas identified for multi-level parking, only 2 shops with an area of 25sqmts. each & 1 office not exceeding 20 sqmts. of the operator of parking on ground floor may be allowed for commercial activities by the competent authority & the balance covered area shall be utilized for parking facility.
- v. Front MOS shall be 3 mt & Side MOS shall be 2.5 mt , in case if road abuts on side, No MOS on road abutting side.
- vi. Minimum Ramp width (both way) shall be 4 mt & minimum Ramp slope 1:8
- vii. Multi-level parking facility shall be allowed in all type of plots.
- viii. Parking provision Layouts shall be approved by the competent authority.
- ix. Adequate sprinklers, exits, ramps and fire-fighting provisions as per provisions in National Building Code – 2016 shall be provided.

- **For Four wheeler parking**

- x. Minimum plot size = 400 sq.mtrs.
- xi. Minimum width of road = 9 mtrs.
- xii. Maximum height shall be as per Regulation no. 8.6.4.
- xiii. In the areas identified for multi-level parking, only 2 shops with an area of 25sqmts. each & 1 office not exceeding 20 sqmts. of the operator of parking on ground floor may be allowed for commercial activities by the

competent authority & the balance covered area shall be utilized for parking facility.

- xiv. Front MOS shall be 3 mt & Side MOS shall be 2.5 mt , in case if road abuts on side, No MOS on road abutting side.
- xv. Minimum two ramps (separate ramps for entry and exit) should be provided with width 4 mt one way & minimum Ramp slope 1:8 for straight type ramp, 1:10 for ramp with turns.
- xvi. Multi-level parking facility shall be allowed in all type of plots.
- xvii. Parking provision Layouts shall be approved by the competent authority.
- xviii. Adequate sprinklers, exits, ramps and fire-fighting provisions as per provisions in National Building Code – 2016 shall be provided.
- xix. Combination of two-wheeler & four-wheeler vehicle parking Shall be allowed.

(Note: If a particular plot owner wants to develop parking facility instead of any other building use, then plot owner shall get the advantage of TDR of twice the FAR as an incentive for facilitating parking for citizens.)

b) Multi-level Mechanized parking

Mechanized multi-level parking will be permitted subject to the following;

- i. Minimum width of road = 9 mtrs.
- ii. ECS = 5 to 16 sq. mtrs. or as per the design and Technology.
- iii. Clear Height of one level = 2.1mtrs, if required additional height as per the size of SUV.
- iv. Front MOS shall be 3 mt & Side MOS shall be 2.5 mt , in case if road abuts on side, No MOS on road abutting side.
- v. Maximum height shall not exceed the permissible building height as per Regulation no. 8.6.4.

- vi. Combination of two-wheeler & four-wheeler vehicle parking Shall be allowed.
- vii. Adequate safety measures for mechanical equipment's.
- viii. Backup of electricity through automatic generators.
- ix. The company shall ensure proper maintenance, structural safety equipment and machinery.
- x. Parking provision Layouts shall be approved by the competent authority.
- xi. Adequate sprinklers & fire-fighting measures shall be as per National Building Code, - 2016.
- xii. Types of mechanized parking: Tower parking, Twin parking, Puzzle parking, Shuttle parking, Revolving parking or as per the design & latest technology.

(Note: If a particular plot owner wants to develop parking facility instead of any other building use, then plot owner shall get the advantage of TDR of twice the FAR as an incentive for facilitating parking for citizens.)

c) Underground parking below Recreational/Open spaces.

Parking facilities can be created under the open spaces/parks (except heritage park), playground without disturbing the green areas on the surface and surrounding environment. The approvals from the concerned Authority are mandatory. The guidelines are as follows;

- i. Minimum area of open spaces/park/playground = 500 sq.mtrs.
- ii. Minimum width of abutting road = 18mtrs.
- iii. Up to 50% of the area to be utilized for underground parking with maximum two basements.
- iv. Ramps to be provided with not more than 1:10 slope.

- v. Maximum height from the road level shall be 0.5 mtrs with provision for mechanized light and ventilation.
- vi. Minimum set back from the boundary of the park will be 1.5 mtrs for the purpose of staircase and ramps.
- vii. Fire & structural safety measures shall be as per National Building Code, - 2016
- viii. Minimum depth of the earth shall be 0.5mtrs.for planting shrubs and grass.
- ix. Adequate drainage for irrigation facilities and for water proofing shall be mandatory.
- x. The Authority may consider to relax the minimum area limit depending upon the requirement in a particular area.
- xi. When parking space is to be provided for motor vehicles, it shall not be less than 20 square metre in open area and 30 square metre in basement and in stilts and for scooters and cycles the parking spaces provided shall not be less than 3 square metres and 1.40 square metres per ECS respectively.

a) On Open-Plot Parking Regulations

- i. Minimum plot size = 500 sq.mtrs.
- ii. Minimum width of road = 12 mtrs.
- iii. Minimum dimensions of parking stalls

A Parking Stall refers to the space for parking of one motor car, that is, a car parking lot. The space of the stall should be rectangular. The longer side is known as length and the shorter side is the width. In parallel parking, the longer side is parallel to the parking aisle or driveway.

The minimum dimensions required of a car parking stall are as follows:

Stall width: 2500

Stall length: 5000

Stall length for parallel parking: 5400

Provision for Parking Layouts shall be as follows

The minimum width of parking aisle shall be as follows:

Parking Angle	1-way Traffic Flow		2-way Traffic Flow
	Bays on 1 side	Bays on 2 sides	Bays on 1 or 2 sides
Parallel	3600mm	3600mm	6000mm
30°	3600mm	4200mm	6300mm
45°	4200mm	4800mm	6300mm
60°	4800mm	4800mm	6600mm
90°	6000mm	6000mm	6600mm

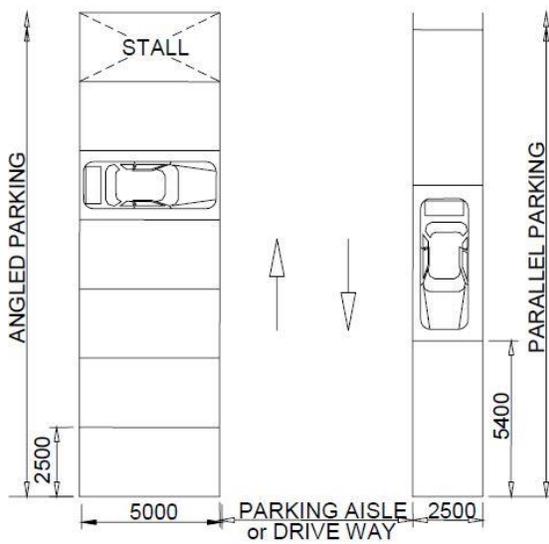


Figure 70 Dimension for parking layouts

8.6.9 Premium/Charges for Mixed-use, Commercial-Use, Additional F.A.R. & Parking in Respective Zones

Table 32 Premium/ Charges

Particulars	R	R-C	C	PSP
Value Capture Fund	Applicable	Applicable	Applicable	Applicable
Mixed-Use (annually) (as per regulation no. 8.7.3)	Applicable	N.A.	N.A.	N.A.
Commercial-Use (one-time) (as per regulation no. 8.7.1)	N.A.	Applicable	Applicable	N.A.
Additional F.A.R. (one-time) (as per regulation no. 8.7.2)	N.A.	Applicable	Applicable	Applicable
Parking Charges (one-time) (as per regulation no. 8.7.4)	Applicable	Applicable	Applicable	Applicable
Amalgamation Charges (one-time) (as per regulation no. 8.7.5)	Applicable	Applicable	Applicable	Applicable

8.7 Value Capture Finance

Following are the Value Capture Finance Methods & Regulations respectively.

8.7.1 Value Capture Fund

- a) Value Capture Fund is applicable on Influence Zone. Influence Zone will be 60m on either side of RoW developed for public transport system and the roads must be with RoW 18m and above.
- b) For the properties abutting to the road as prescribed above, the Value Capture Fund should be at the rate of 5% on Collector Guideline Rate.
- c) For the properties which are not abutting the road and backside of the road facing properties, the fees shall be at the rate of 2.5% on Collector Guideline Rate.
- d) The above fees shall be charged at the time of building permission by Implementing Agency.

8.7.2 Commercial Use Charges

- e) These are the charges for the Commercial use, shall be taken as premium on FAR and shall be payable once.
- f) These charges shall be applicable for R-C Zone & C Zone.
- g) Commercial use charges will be calculated as

Total payable Fee = (Plot/Land area) x (Consumed FAR) x (land value, Prevailing collector rate) x 0.05

8.7.3 Premium on additional FAR.

- a) These are the charges for additional Floor Area Ratio (FAR) and shall be payable once.
- b) These charges shall be applicable for R-C zone, C zone, PSP Zone.
- c) The additional FAR permitted shall not exceed the FAR already permissible in the Smart City Master Plan.

- d) The additional FAR permitted shall be purchased 50% through Premium on FAR by Implementing Agency and 50% through TDR.
- e) In case if TDR is not available then plot owner can avail 100 % additional FAR through FAR premium provided by Implementing Agency.
- f) An application for availing additional floor area ratio (FAR) shall be made to the competent authority of ISCDL. Such application shall be accompanied by the documents mentioned in the form in the annexure, and a fee of Rs 5000. The Competent authority after examination the application may allow additional floor area ratio to the applicant to the extent permitted in rule hereinabove.
- g) The application for grant of additional FAR shall be considered only in case the plot in questions is a part of a layout plan duly approved by the competent authority.
- h) Premium on Additional FAR will be calculated as follows:
= (Purchased Additional FAR in Sqm.) x (25% of the prevailing collector guideline rate)
- i) The Sale/Purchase of Transfer of development rights shall be as per the Govt. Policy & regulations.
- j) After purchase of additional FAR, Authority will issue the certificate of extra FAR purchased from the Authority. Only after getting the certificate, the property owner will get the building permission for additional FAR.

8.7.4 Premium on Mixed use.

- a) These are the charges for the Mixed use (non-residential use) in the residential use and shall be payable annually.
- b) These charges shall be applicable for R Zone.
- c) Premium on Mixed Use will be calculated as follows:

Total payable amount: (Prevailing collector guidelines rate (per Sqm) x 0.01 x (Total Area used as non-residential)).

- d) As per the mixed-use policy, use of non-residential activity in residential building shall pay the above prescribed charges before building permission. These charges shall be paid before building permission
- e) Any mixed use which is in existence in residential area, the owner shall get the revised approval from competent authority within 2 years from the date of notification of Special Development control regulations. If the owner fails to get the revised permission then, owner will be penalized 10 times the additional charges for the mixed use for the period after the date of notification.
- f) These mixed-use charges which will be deposited with the ULB, the particular amount will be used for infrastructure development and parking development.
- g) The ULB has a right to inspect, penalize the properties which are under mixed use category.

8.7.5 Premium on Parking

These charges shall be applicable for R-Zone, R-C zone, C zone, PSP Zone.

If required parking space as per Regulation no. 8.6.8.1.2 cannot be provided due to plot size constraints, then plot owners can pay parking facility charges as follow:

Parking Charges = (Prevailing Collector Guidelines rate) x 25% x (Total Required Parking Area)

8.7.6 Premium on Plot amalgamation.

These charges shall be applicable for R-Zone, R-C zone, C zone, PSP Zone.

Plot amalgamation charges will be calculated as

- a) For R- Zone

Premium = (Total amalgamated land in Sqm) x Rs 100

b) For RC-Zone & C-Zone

Premium = (Total amalgamated land in Sqm) x Rs 200

c) For PSP-Zone

Premium = (Total amalgamated land in Sqm) x Rs 50

8.8 Regulations for Zones – PSP, G, T

The following regulations are applicable for the following zones: Public-Semi-Public (PSP), Recreational Zone (G), Transport Zone (T) & Environmentally Sensitive Green Area (SG).

8.8.1 Permissible Uses

8.8.1.1 Permissible Uses in Public-Semi-Public (PSP)

Permissible uses & Non-Permissible uses shall be as per Regulation 8.5.3 above.

For Hospital/ Maternity Home/ Nursing Home Minimum Built up area shall be 90 Sqm per Bed.

8.8.1.2 Permissible Uses in Recreational Zone (G)

1. Open Space and Recreational Area

Permissible uses & Non-Permissible uses shall be as per Regulation 8.5.3 above.

2. City Park

In view of Conservation & Maintenance of the city Parks, the Activities listed in the Regulation 8.5.3 above shall be permissible by the Competent authority.

Note: open space for facilities like septic Tank, overhead tanks, substations etc. shall be provided in addition to the regular open space in the layout.

8.8.1.3 Permissible Uses in Transport Zone (T)

Permissible uses & Non-Permissible uses shall be as per Regulation 8.5.3 above.

8.8.1.3.1 Design consideration for Streets

- i. Provision of Footpaths on all streets, except on traffic calmed small streets.
- ii. Footpath shall be continuous unobstructed & minimum width shall be as per Section in the Annexure.

- iii. Provision of Bus Stops (Shall not create hindrance for pedestrians) & Safe pedestrian crossings near Bus stops.
- iv. Space for Street vendors/Hawkers without creating hindrances to pedestrian movement.
- v. Location & number of vendors shall be decided by competent authority.
- vi. Provision of unobstructed Street Furniture's
- vii. Litter/Trash bin.
- viii. Informatory & cautionary signages (as per IRC guidelines)

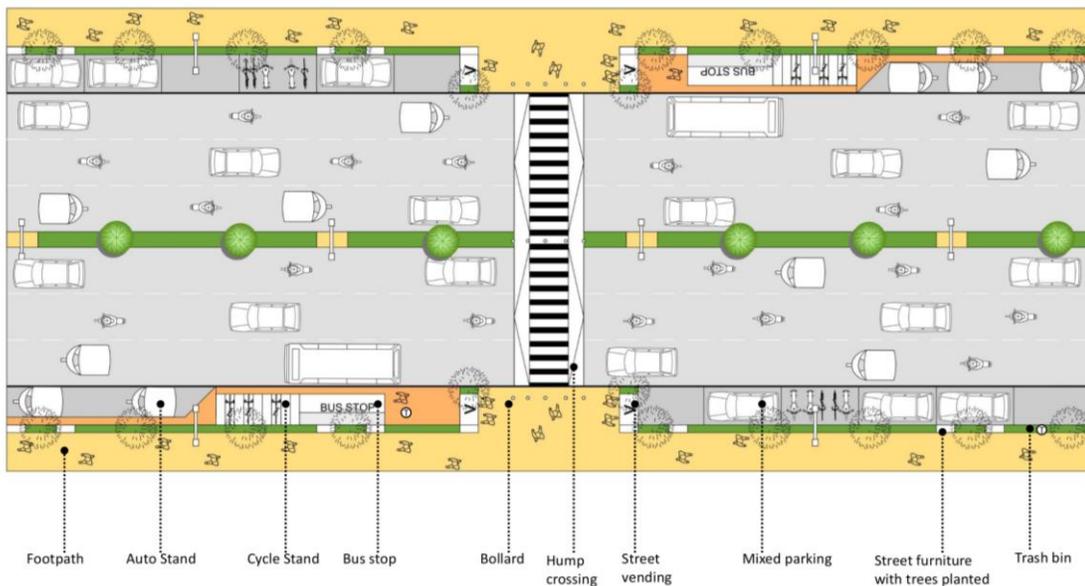


Figure 71 Sample Street strip Plan

- ix. Development & Regularization On-street parking should be provided on streets with ROW 18 mt or above.
- x. Space for Public toilet (unobstructed)
- xi. All the Underground utilities for e.g.: storm water drainage, sewerage lines, water pipe line, telecom line etc. shall be as per section proposed in the annexure.
- xii. Road markings (as per IRC guidelines).

Note: Refer & follow Street Design Guidelines-DDA & IRC guidelines for detail design regulations.

8.8.1.4 Permissible Uses by Road width

As per Regulation no. 8.6.1.4 of these regulations.

8.8.2 Permissible Floor Area Ratio (FAR) For PSP, G, T

1. The base FAR for zones PSP, G, T shall be as mentioned in Table 33 below.
2. No Additional FAR shall be purchasable on G and T zones.

Table 33 FAR for PSP, G & T

FAR Table as Per Road Width		
S.no	Zones	Base F.A.R
1	PSP	1.0 (additional FAR as per 8.7.3)
2	G (Recreational)	0.05
3	T (Transport)	1.0

8.8.3 Building Height

8.8.4 Maximum Permissible Height

The Maximum Permissible Building Height shall be as per provisions of Regulation no. 8.6.4 and regulated according to the width of the road on which it abuts as mentioned in the regulation no. 8.6.1.4.

8.8.5 Margins

8.8.5.1 Road Side Margins for PSP, G & T Uses

The margins for any building development shall be as per Regulation no. 8.6.5

8.8.6 Permissible Ground Coverage

For PSP, G & T Zones, the maximum permissible ground coverage shall be as per Table 34 below.

Table 34 Permissible Ground Coverage for PSP, G & T Zone

S.No.	Land Use Zone	Max. Ground Coverage
1.	Public Semi Public	50%
2.	Recreational Green	5%
3.	Transport	25%

8.8.7 Parking

The parking requirements for PSP, G & T shall be as per Regulation no. 8.6.8 above.

8.9 Regulations for Environmentally Conserved Green Zone (CG)

1. It is an environmentally conserved land-use where no building construction is permitted.
2. Development activities within this zone shall conform to the regulations given here under;
 - a) The green buffer along the Nallas/ Rivers as shown in the Map No. 1
The open space along the River/tributary shall be minimum 30 meters from the highest water level.
 - b) Development of road/mechanized parking/off-street parking as per regulation no. 8.6.8 shall be permissible in this zone by the competent authority.
 - c) Plantation and sit outs, shall be permissible within this zone by the competent authority.
 - d) Development permissions for Recreational activities or sightseeing areas shall be given as per the regulation no. 8.5.3 in these regulations within this zone by the competent authority.
 - e) Structures of historical/heritage importance in this zone shall be preserved. Any restoration works needed to be carried out shall be encouraged with the permission of the competent authority.
 - f) Existing building coming within this zone shall not allowed to add any additional coverage or F.A.R.

8.10 Regulations for Redevelopment Parcels

The following regulations are applicable for the Redevelopment land parcels as shown in Map no. 1

8.10.1 Permissible Uses

8.10.1.1 Permissible Uses for Redevelopment area lying in dominant zone as per Map No. 1

Permissible uses & Non-Permissible uses shall be as per the dominant zone on which the Redevelopment parcel lies and shall be as per Regulation no. 8.5.3 above.

- The percentage of permissible uses allowed on Total Built-up area of Redevelopment Parcel shall be as per Table 35 below;

Table 35 Permissible uses of a Redevelopment Parcel lying on specified predominant land-use

S.No.	Permissible Use	Percentage of Permissible uses on Total Built-up area of Redevelopment Parcel	
		If, it lies in Predominantly Residential zone	If, it lies in Predominantly Commercial zone
1.	Residential	70 %	40%
2.	Commercial	20%	50%
3.	PSP	10%	10%

Note: 1. For Residential Area Informal sector will be 15% as per the norms and For Commercial Area Informal sector shop area should be 2.5 % of the commercial built up area.

2. Area under PSP may be accommodated in Residential or Commercial as per requirement.

8.10.1.2 Permissible Uses by Road width

The Minimum width of the abutting road shall not be less than 18 M for redevelopment parcels.

8.10.2 Development of Land

1. Minimum area of the land/plot for redevelopment shall be 0.2 Hectare, plot may be owned by an individual/ society or pooled of different owners or by govt. body.
2. Aforesaid plot/land for Redevelopment, must have planning permission in which the city level circulation is coordinated, essential provisions for sector/sub sector level amenities, facilities, utilities and services and provision for informal sector shall be ensured as per the provision of Madhya Pradesh nagar Palika Colonizer registration (Nirbandhan Tatha Sharthey) Niyam 1998.
3. Development of Redevelopment parcels shall be permissible only if, minimum Plot width/Land Frontage is 30 m on the abutting road as mentioned in regulation no. 8.10.1.2 above.

Note:

Provision for economically weaker section shall be incorporated in the Redevelopment Layouts as per Madhya Pradesh nagar Palika (Coloniser registration Nirbandhan Tatha Sharthey) Niyam 1998 or the policy of the State Govt. laid down from time to time.

8.10.3 Permissible Floor Area Ratio (FAR) For Redevelopment Parcels

1. The base FAR for Redevelopment parcel shall be 1.5 as mentioned in below.
2. Additional FAR purchasable shall be as per Table no. 36 below.
3. Area covered by Atrium and mezzanine floors shall be counted towards computation of FAR.
4. The Permissible F.A.R shall comprise Base F.A.R, TDR and Additional F.A.R as prescribed in below:

Table 36 Permissible FAR for Redevelopment Parcels

Permissible FAR for Redevelopment Parcels				
S.N.	RoW	Base F.A.R.	Additional F.A.R. (50% TDR & 50% IMC)	Total Permissible F.A.R.
1	30 m	1.5	1.5	3
2	24 m & 18 m	1.5	1	2.5

8.10.4 Building Height

8.10.4.1 Maximum Permissible Height

The Maximum Permissible Building Height shall be as per provisions of Regulation no. 8.6.4 and regulated according to the width of the road on which it abuts as mentioned in the above-mentioned regulation.

8.10.5 Margins

8.10.5.1 Road Side Margins for Redevelopment Parcels

The margins for any building development shall be as per Regulation no. 8.6.5.

8.10.5.2 Minimum Margin between Buildings

1. Minimum distance between two buildings shall be 1/3 the height of taller building.
2. If two buildings next to each other have different heights, required margin for taller building shall be applicable. For example- if one building is of 25mts and the adjacent building is of 45mts in height, the minimum margin between these two buildings shall be 15.0mts.

8.10.5.2 Permissible Ground Coverage

1. The maximum permissible ground coverage shall be 50%.
2. Minimum Common Open Space of 10% shall be provided and no edge of such open space shall be less than 7.5m.

8.10.6 Parking

1. The parking norms for Redevelopment parcels shall be as per Regulation no. 8.6.8.

2. Provision of individual parking shall be compulsorily provided for every redevelopment land parcel.

8.11 Regulations for Urban Heritage Area

8.11.1 Applicability

These Regulations will apply to those buildings, arte-facts, structures and/or precincts of historical and/or aesthetical and/or architectural and/or cultural value (hereinafter referred to as listed Buildings/Heritage Buildings and listed precincts/ Heritage precincts) as marked on the Map No. 1.

8.11.2 Restriction on Development/Redevelopment/Repairs, Etc.

- a) No development or redevelopment or engineering operations or additions, alterations, repairs, renovation including the painting of buildings, replacement of special features or demolition of the whole or any part thereof or plastering of said listed / heritage buildings or listed Heritage precincts shall be allowed except with the prior written permission of the Commissioner in consultation with the Heritage Conservation Committee to be appointed by Government (hereinafter called “the said Heritage Conservation Committee”). The Commissioner may overrule the recommendations of the said Heritage Conservation committee by recording reasons in writing.
- b) In relation to religious buildings in the said list, the changes, repairs, additions, alterations and renovations required on religious grounds mentioned in sacred texts or as a part of holy practices laid down in religious codes shall be treated as permissible, subject to their being in accordance and consonance with the original structure and architecture designs, aesthetics and other special features thereof. Provided that before arriving at his decision, the Commissioner may take in to consideration the recommendations of the Heritage Conservation Committee.
- c) Provisions of this Regulation shall be applicable only in Grade-II category of heritage Buildings for reconstruction and redevelopment of buildings undertaken under these Regulations no. 8.11.5.

d) Identified and listed heritage building even under private ownership will not be allowed to be demolished.

8.11.3 Power to Alter, Modify The List Of Heritage Buildings And Heritage Precincts

The said list of buildings, artefacts, structures and precincts of Historical, and/or aesthetical and/or architectural and/or cultural value to which this Regulations applies may be supplemented, altered, deleted or modified from time to time by Government on receipt of proposals from the Commissioner or by the Government.

8.11.4 Grant of Transferable Development Rights In Case Of Loss Of Development Rights

If any applications for development is refused under this Regulations and conditions are imposed while permitting such development which deprive the owner/lessee of any unconsumed development rights, the said owner/lessee shall be compensated by grant of Development Right Certificate in terms of TDR as GOMP TDR policy. The extent of TDR permissible will be difference between the permissible development rights on the plot and the consumed BUA of the heritage structure. The grant of TDR shall be subject to a contract between the owner/lessee and IMC, binding the owner/ lessee to conserve the heritage building in a prescribed manner.

8.11.5 Grading of The Listed Buildings/ Listed Precincts

In the last column of the said list of Heritage Building, Heritage precincts, "Grades" such as II, or III have been indicated. The meaning of these Grades and basic guidelines for development permissions are as follows:

Table 37 Grading of the Listed Buildings/ Listed Precincts

Sr. No.	Grade II	Grade III
1.	Scope - Heritage Grade II comprises building/ precincts, of regional or local importance, possessing	Heritage Grade-III Comprises of buildings and precincts of importance for town scape, they

	<p>special architectural or aesthetical merit or cultural or historical value, though of a lower order. They are local landmarks contributing to the image and identity of the city. They may be the work of master craftsmen or may be models of proportion and ornamentation, or designed to suit particular climate.</p> <p>Heritage Grade II buildings within the premises (open space/compound) of which independent/separate additional building(s)/structure(s) may be permitted to be constructed, owing to the availability of adequate surrounding open space and unconsumed F.A.R., have been assigned Grade-II B. The remaining Grade II buildings have been assigned Grade - II A.</p>	<p>evoke architectural aesthetic or sociological interest though not as much as in Heritage Grade- II. These contribute to determine the character of the locality, and can be representative of a life style of a particular community or region and may also be distinguished by setting of a street-line or special character of the facade and uniformity of height, width and scale.</p>
2.	Objective - Heritage Grade-II deserves intelligent conservation.	Heritage Grade III - Deserves protection of unique features and attributes.
3.	Scope for development – Grade-IIA: In addition to the scope for development permissible for Grade-I, internal changes, and adaptive reuse may be	External and internal changes and adaptive reuse would generally be allowed. Changes can include extensions / additional buildings in the same plot or compound

<p>generally allowed. In certain circumstances, extension of a Grade-IIA heritage building may also be allowed; provided that such extension shall be in harmony with (and shall not detract from) the Grade-IIA heritage building concerned or precinct, especially in terms of height and/or facade. External changes too may be permitted, subject to strict scrutiny. Care should be taken to ensure the conservation of all special aspects/features of Grade-IIA building concerned.</p> <p>Grade-IIB:</p> <p>In addition to above, additional building(s) in the same plot or compound may, in certain circumstances, be allowed; provided that, such additional building(s) shall be in harmony with (and shall not detract from) the Grade-IIA heritage building(s) or precinct, especially in terms of height and/or facade and such buildings shall be termed as Grade-IIB heritage buildings.</p>	<p>provided that extension / additional building is in harmony with and does not detract from the existing heritage building / precincts especially in terms of height and/or facade. Reconstruction may be allowed when the building is structurally weak or unsafe or when it has been affected by accidental fire or any other calamity or if reconstruction is required to consume the permissible F.A.R. and no option other than reconstruction is available.</p> <p>Reconstruction may also be allowed in case of those buildings which attracts the provisions of SDCR Reconstruction may be allowed in those buildings being repaired/ reconstructed by IMC.</p> <p>However, unless absolutely essential nothing should spoil or destroy any special features or attributes for which</p> <p>It is placed in the Heritage List.</p>
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<p>4.</p>	<p>Procedure: Development permission would be given by the Municipal Commissioner in consultation with IHCC.</p>	<p>Development permission would be given by the Commissioner in consonance with guidelines to be laid down by Government in consultation with IHCC.</p>
<p>5.</p>	<p>Vistas / Surrounding Development- All the development in the areas surrounding Heritage Grade - II shall be regulated and controlled, ensuring that it does not mar the grandeur of or views from Heritage Grade-II.</p>	

8.12 Urban Design Regulations

8.12.1 Step Backs

Step-back should be interpreted as a step-like recession in a wall after a defined building height. Building step-backs for streets proposed shall be as given below and as illustrated in Figure 73 to Figure 79.

Table 38 Front step back

S.N.	Right of Way	Front Step Back
1.	9.00 M	At height of 9.00 M or at the top level of third slab level from ground whichever is more on both sides of the street. Minimum Step back of width 1.50 M.
2.	12.00 M & 15.00 M	At height of 9.00 M or at the top level of third slab level from ground whichever is more. Minimum Step back of width 1.50 M & additional 1.50 M at height of 15 M or at top level of fifth slab level from ground.
3.	18.00 M and Above	At height of 15.00 M or at the top level of fifth slab level from ground whichever is more. Minimum Step back of width 1.50 M

8.12.2 Corner Articulation:

Buildings located at the corner of intersection/ T-intersection plays an important role for Heritage Precinct Area as well as for the entire ABD area. Hence such Buildings shall have to provide a chamfer of 3m or rounded corner with 3m radius.

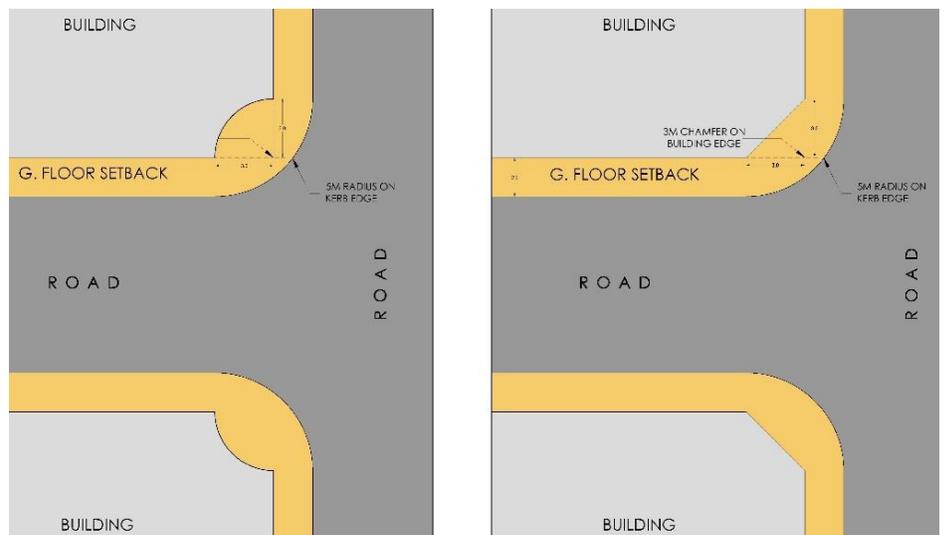


Figure 72 Corner articulation

8.12.3 Mandatory Building Line

All developments on the streets shall follow existing dominant front setback as suggested in this chapter.

8.12.4 General Note

Plinth Level (Ground Floor Finish Level)	Consistent 300mm from center of Road Line
Public Walkway Level	150mm from center of Road Line
Signage Height / Shopfront Glass Height	To be Consistent 3.0m high from Walkway Level with Clear Shop Front Glass Height of 2.7m
Min. Ground Floor Clear Height	3.0m (Clear from Bottom of Slab to Walkway Top of Finish)

Notes:

1. Continuity of Street-Wall: All buildings to align with adjacent building including Ground Floor Shopfront
2. Awning Projection: All Shopfronts to provide 1.5m wide retractable Awning of approved Design & Color to be fixed @ 3.2m from Road Level
3. Signage: Signage should not be more than 300mm thick. Signage Color for every Street shall be as per Advertisement Guidelines as notified by Indore Municipal Corporation.
4. No Projection is allowed in Right of Way Line / Setback Line, in case there's requirement of Balcony that should be designed as a concealed / covered balcony within the setback limits.
5. Steps/ramps for approaching plinth shall not be allowed in the front MOS.

Table 39 Urban Design Regulations for street with less than 9m RoW.

Street Width	Less than 9m (proposed RoW in this Master Plan)
Street Edge / Street Wall Guideline	Continuous Street Wall, all buildings to align consistently along Proposed Setback Line on all Floors
Setback	As per regulation 8.6.5.1
Building / Street Wall	Building Line above Ground Floor to align with proposed ROW Line
Ground Floor Setback	0.5m in addition to the setback as per regulation 8.6.5.1
Upper Floor Stepback	At height of 6.00 M or at the top level of G+1 roof slab level, 1.5m of additional Setback (in addition to the front setback as per regulation 8.6.5.1) would be required from ROW Line.
Max. Building Height	G+2 Floors / 9m
Other Height Control Regulations	
Height Variation with adjacent Buildings	Allowed upto Max. of ± 500 mm from Street Wall Height Guideline: 6m

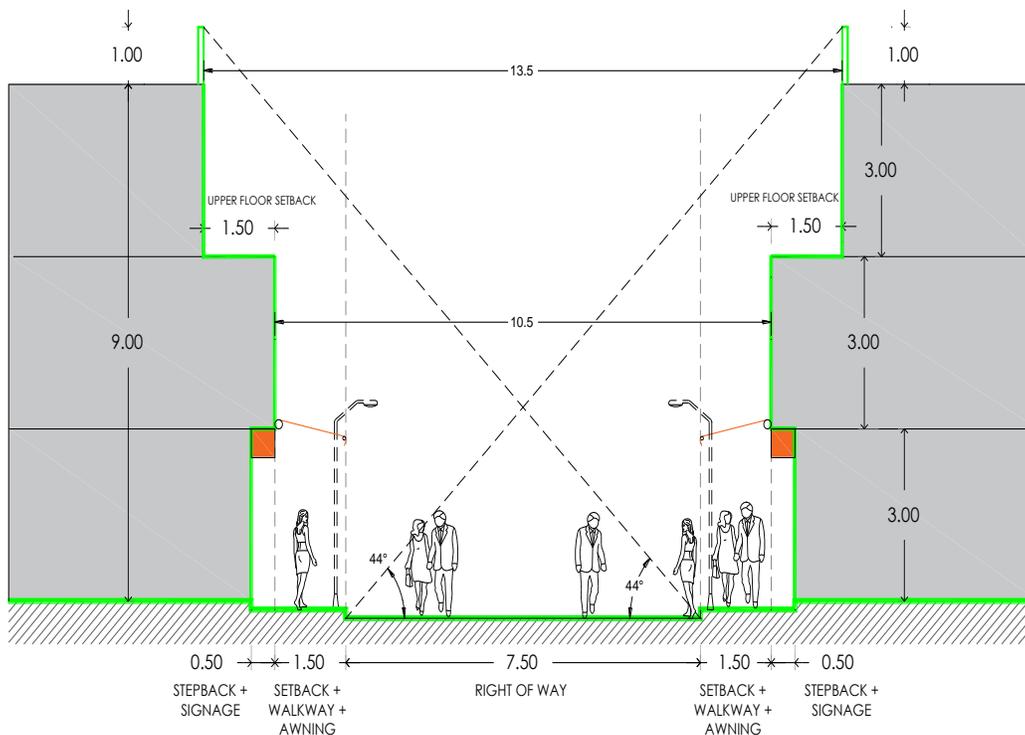


Figure 73 ROW 7.5 mt

Table 40: Urban Design Regulations for street with RoW 9m

Street Width	9 m (proposed RoW in this Master Plan)
Street Edge / Street Wall Guideline	Continuous Street Wall, all buildings to align consistently along Proposed Setback Line on all Floors
Setback	1.5m from ROW Line
Building / Street Wall	Building Line above Ground Floor to align with ROW Line
Ground Floor Setback	2.0m Setback from ROW Line
Upper Floor Stepback	At height of 6.00 M or at the top level of G+1 roof slab level, 3.0m Setback would be required from ROW Line.
Max. Building Height	G+3 Floors / 12m
Other Height Control Regulations	
Height Variation with adjacent Buildings	Allowed upto Max. of ± 500 mm from Street Wall Height Guideline: 6m

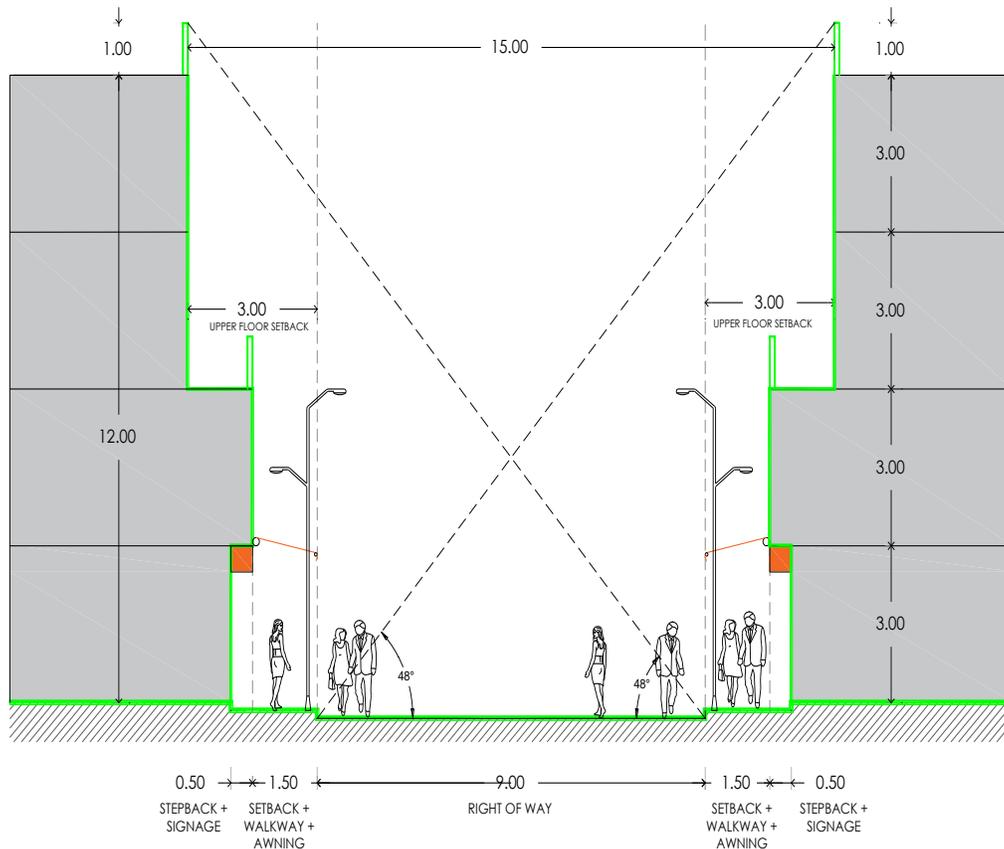


Figure 74 ROW 9 m

Table 41: Urban Design Regulations for roads with RoW 12m and 15m

Street Width	12m and 15m (proposed RoW in this Master Plan)
Street Edge / StreetWall Guideline	Continuous Street Wall, all buildings to align consistently along Proposed Setback Line on all Floors
Setback	As per regulation 8.6.5.1
Building / StreetWall	Building Line above Ground Floor to align with ROW Line
Ground Floor Setback	0.5m in addition to the setback as per regulation 8.6.5.1
Upper Floor Stepback-1	At height of 6.00 M or at the top level of G+1 roof slab level, setback (3.50m in case of 12m RoW & 4.00m in case of 15m RoW) would be required from ROW Line.
Upper Floor Stepback-2	At height of 15.00 M or at the top level of G+4 roof slab level, setback (5.00m in case of 12m RoW & 5.50m in case of 15m RoW) would be required from ROW Line.
Max. Building Height	G+5 Floors / 18m
Other Height Control Regulations	
Height Variation with adjacent Buildings	Allowed upto Max. of ± 500 mm from StreetWall Level-1 Height Guideline: 6m StreetWall Level-2 Height Guideline: 15m

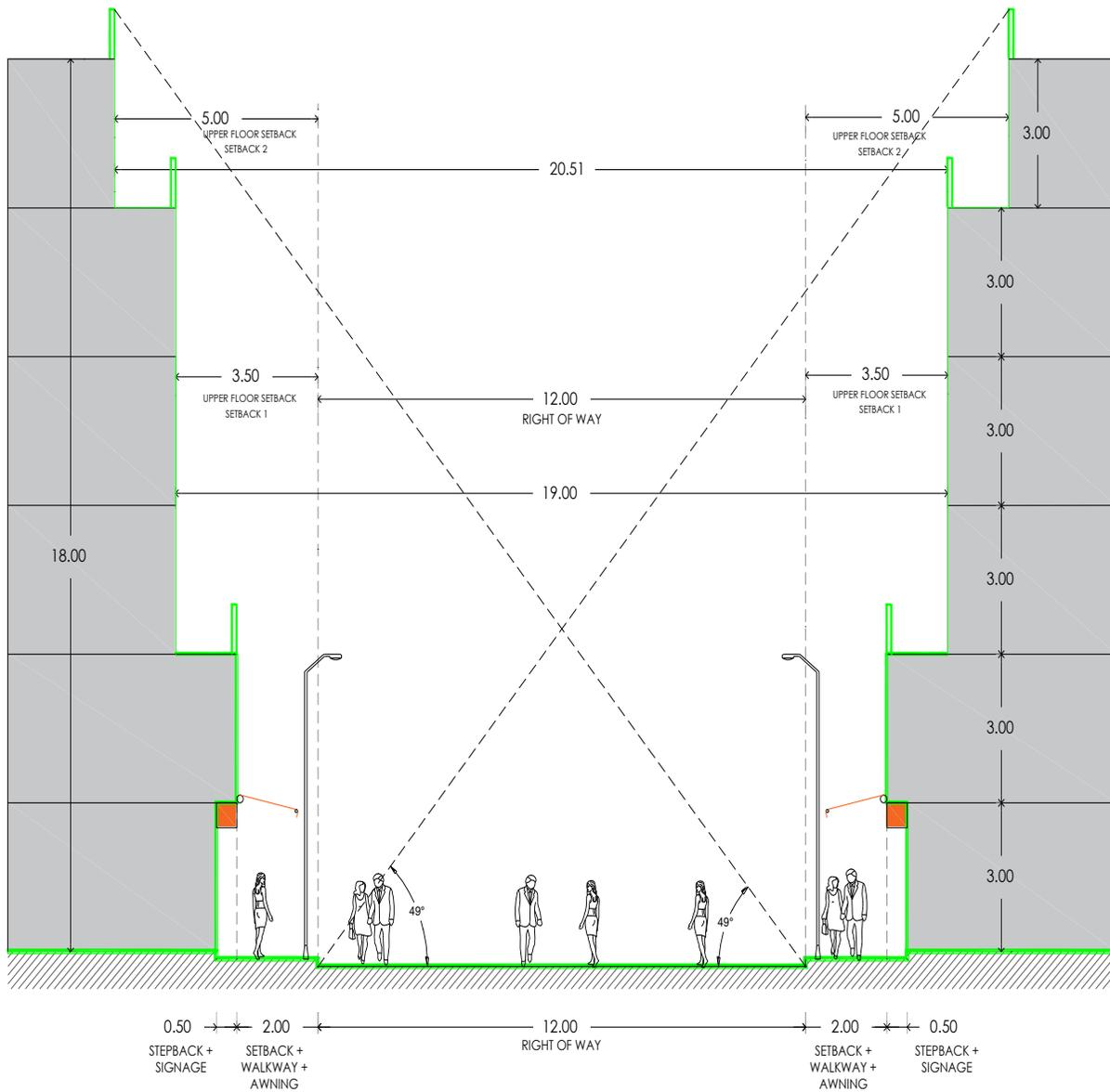


Figure 75 ROW 12 mt

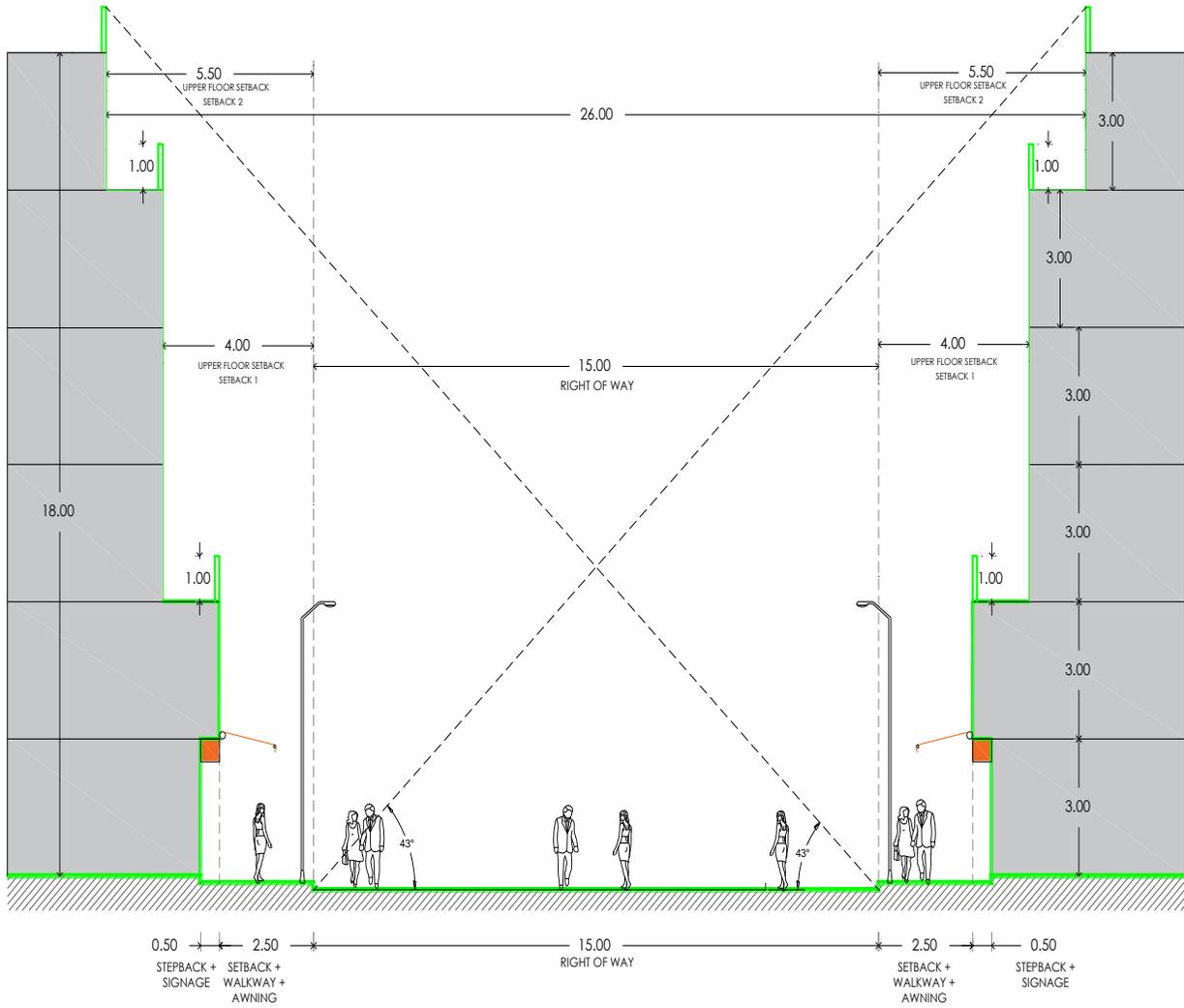


Figure 76 ROW 15 mt

Table 42: Urban Design Regulations for roads with RoW 18m

Street Width	18m (proposed RoW in this Master Plan)
Street Edge / StreetWall Guideline	Continuous Street Wall, all buildings to align consistently along Proposed Setback Line on all Floors
Setback	3.0m from ROW Line
Building / StreetWall	Building Line above Ground Floor to align with ROW Line
Ground Floor Setback	3.5m Setback from ROW Line
Upper Floor Stepback-1	At height of 6.00 M or at the top level of G+1 roof slab level, 4.50m Setback would be required from ROW Line.
Upper Floor Stepback-2	At height of 15.00 M or at the top level of G+4 roof slab level, 6.00m setback would be required from ROW Line.
Max. Building Height	G+7 Floors / 24m
Other Height Control Regulations	
Height Variation with adjacent Buildings	Allowed upto Max. of ± 500 mm from StreetWall Level-1 Height Guideline: 6m StreetWall Level-2 Height Guideline: 15m

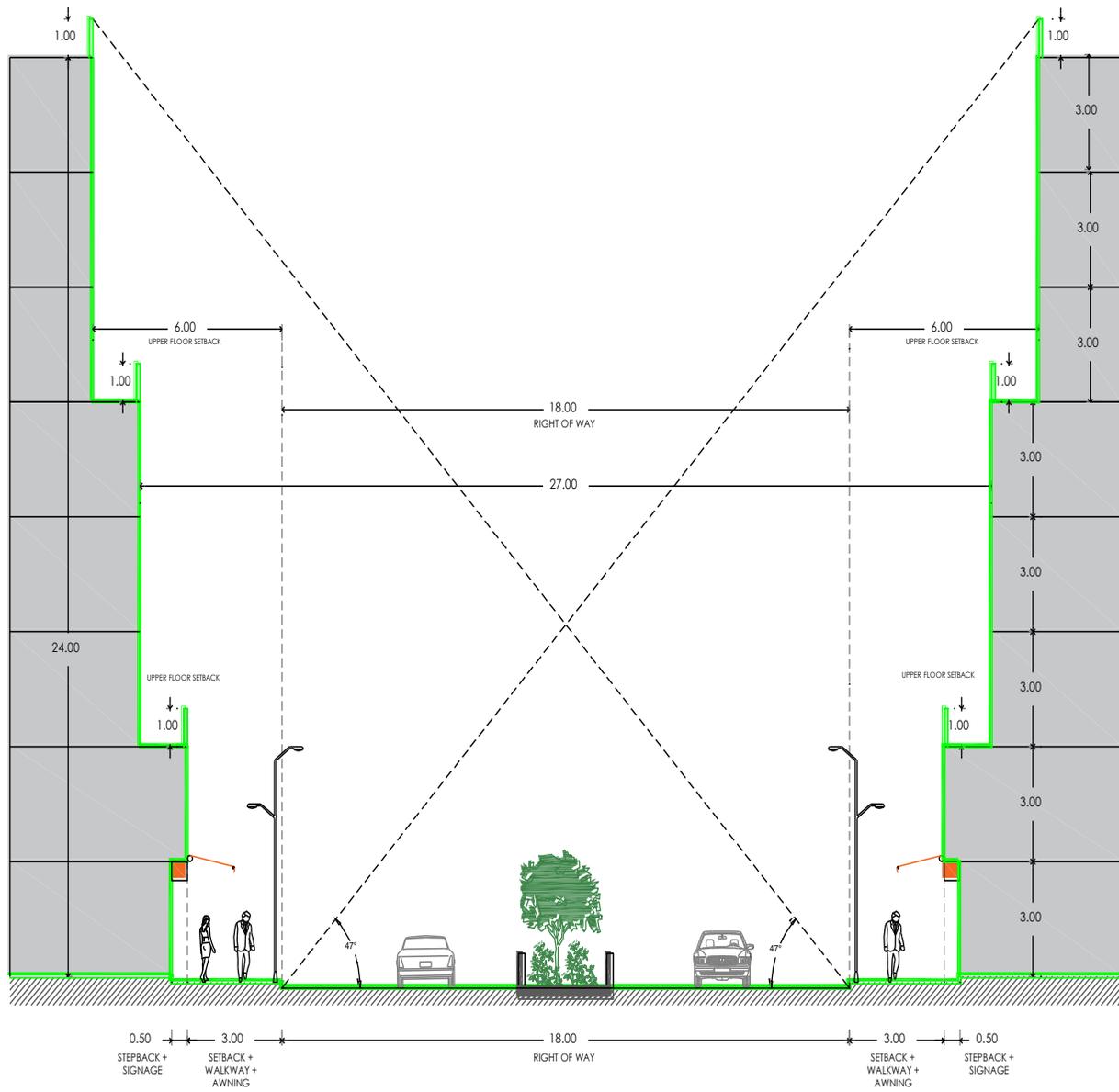


Figure 77 ROW 18 mt

Table 43: Urban Design Regulations for roads with RoW 24m

Street Width	24m (proposed RoW in this Master Plan)
Street Edge / StreetWall Guideline	Continuous Street Wall, all buildings to align consistently along Proposed Setback Line on all Floors
Setback	3.5 m from ROW Line
Building / StreetWall	Building Line above Ground Floor to align with ROW Line
Ground Floor Setback	4.0 m from ROW Line
Upper Floor Stepback-1	At height of 6.00 M or at the top level of G+1 roof slab level, 5.00m Setback would be required from ROW Line.
Upper Floor Stepback-2	At height of 15.00 M or at the top level of G+4 roof slab level, 6.50m Setback would be required from ROW Line.
Upper Floor Stepback-3	At height of 24.00 M or at the top level of G+7 roof slab level, min. 8.00m Setback would be required from ROW Line.
Max. Building Height	G+9 Floors / 30m
Other Height Control Regulations	
Height Variation with adjacent Buildings	Allowed upto Max. of ± 500 mm from StreetWall Level-1 Height Guideline: 6m StreetWall Level-2 Height Guideline: 15m StreetWall Level-3 Height Guideline: 24m

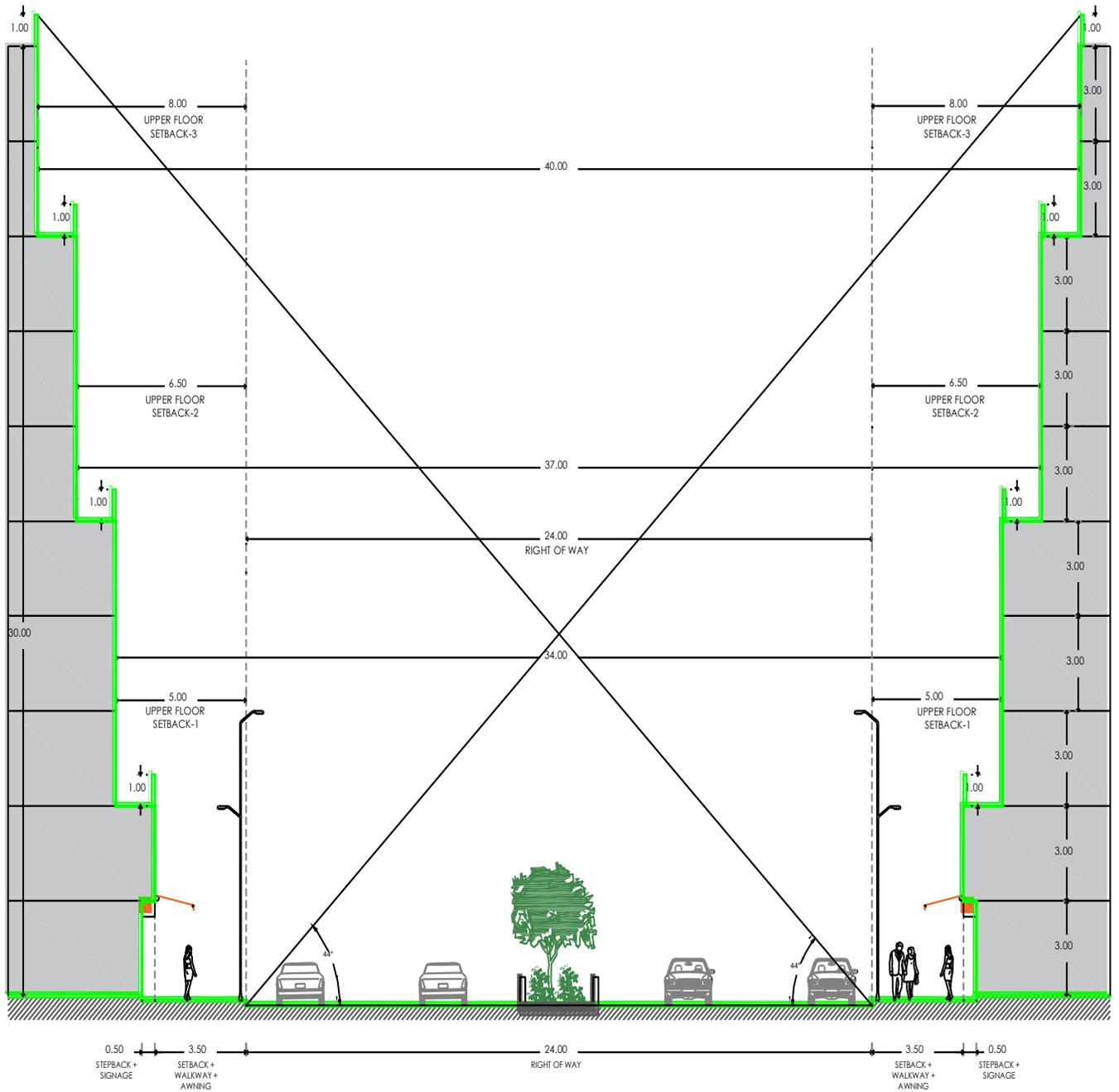


Figure 78 ROW 24 mt

Table 44: Urban Design Regulations for roads with RoW 30m

Street Width	30m (proposed RoW in this Master Plan)
Street Edge / StreetWall Guideline	Continuous Street Wall, all buildings to align consistently along Proposed Setback Line on all Floors
Setback	4.0 m from ROW Line
Building / StreetWall	Building Line above Ground Floor to align with ROW Line
Ground Floor Setback	4.5 m from ROW Line
Upper Floor Stepback-1	At height of 6.00 M or at the top level of G+1 roof slab level, 5.50m Setback would be required from ROW Line.
Upper Floor Stepback-2	At height of 15.00 M or at the top level of G+4 roof slab level, 7.00m Setback would be required from ROW Line.
Upper Floor Stepback-3	At height of 24.00 M or at the top level of G+7 roof slab level, min. 8.50m Setback would be required from ROW Line.
Upper Floor Stepback-4	At height of 33.00 M or at the top level of G+10 roof slab level, min. 10.00m Setback would be required from ROW Line.
Max. Building Height	G+14 Floors / 45m
Other Height Control Regulations	
Height Variation with adjacent Buildings	Allowed upto Max. of \pm 500mm from StreetWall Level-1 Height Guideline: 6m StreetWall Level-2 Height Guideline: 15m StreetWall Level-3 Height Guideline: 24m StreetWall Level-4 Height Guideline: 33m

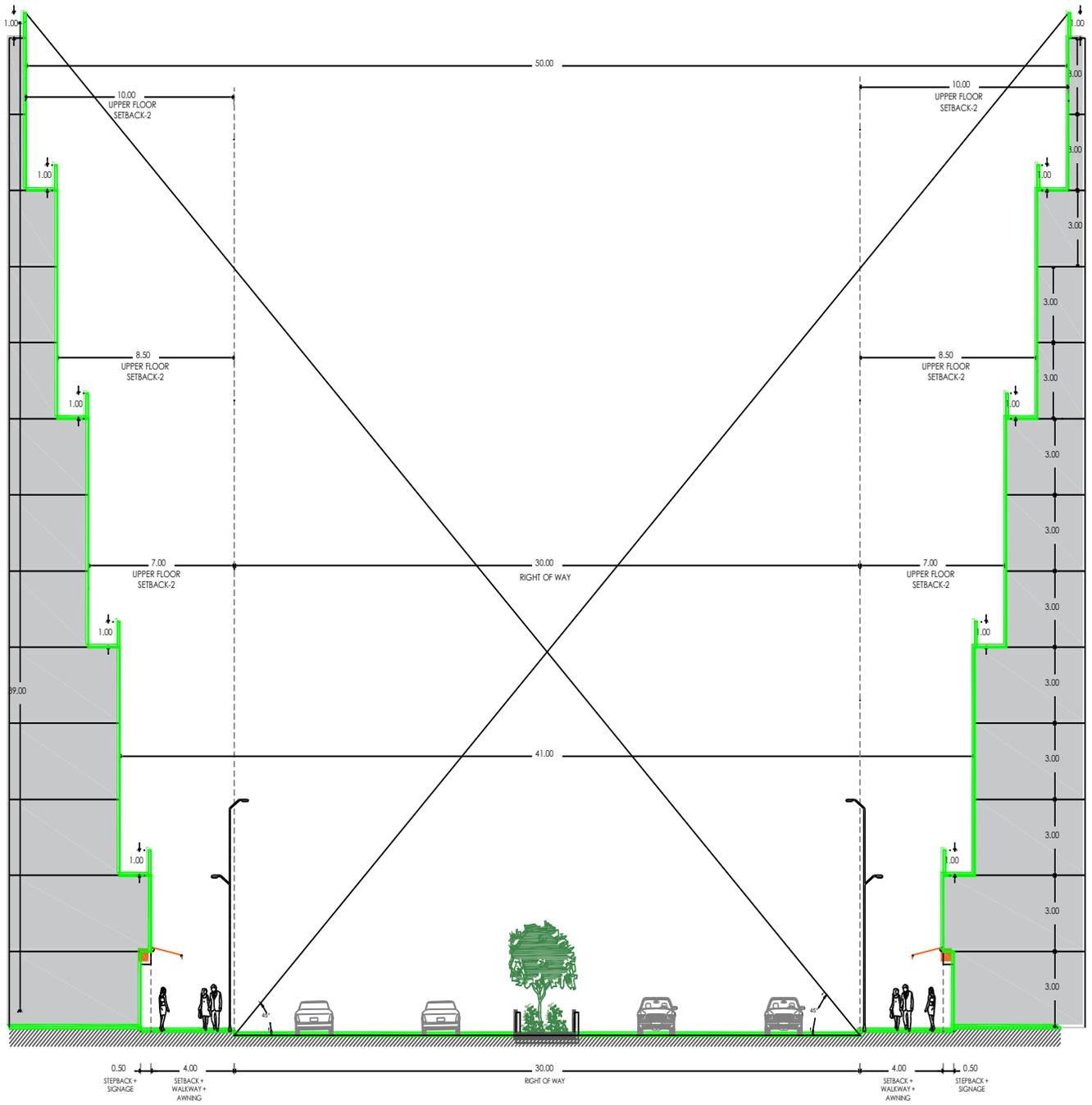


Figure 79 ROW 30 mt

8.12.5 Mandatory Façade guidelines

After detail DPR for façade design guidelines for individual street, owner shall mandatory follow the same

8.12.6 Extensions to Existing Buildings

Over next few years, many plot owners would wish to extend their buildings. The Proposed extension should be developed with due consideration its appearance and effect on the street scene; its impact on the amenities of neighboring buildings. The Proposed extensions should conform to Urban Design Guidelines for respective Street.

In addition to the Urban Design Guideline for Particular Street, the Proposed Extension to existing building should follow additional guidelines as listed below relating to the size and design of extensions, and the circumstances where extensions are generally acceptable, are intended to act as a guide for building owners. The design and layout of extensions should reflect the design and proportions of the original building particularly for building with Traditional Features and building older than 15 years, for example: -

- UDR-1 Doors and windows should reflect the size, style and sill/lintel of the original.
- UDR-2 Materials should match or be in harmony with those of the original building.
- UDR-3 If the original building had a pitched roof, proposed extension / alteration should also have similar roof form
- UDR-4 Where an existing building is adjoining a road on two sides, i.e. a corner plot, the extension should incorporate sufficient space for turning radius of vehicles as defined by Guideline.

8.12.7 Advertisements / Signage

All Advertisement & Signage to be installed in Urban Design Control Area of Indore Smart City would require permission from Planning Authority (Indore Municipal Corporation) unless specific exemption is provided in Guidelines. The following criteria will be applied to all advertisements requiring planning permission.

- UDR-5 Advertisement / Signage hoardings and free-standing signs will not be allowed, except where they are installed on a temporary basis, to screen vacant, untidy or under-construction sites.
- UDR-6 Advertisements / Signage on building should be of a scale and design which relate to the style of the premises on which they are to be displayed. Illuminated fascia signs should be no deeper than 300mm. The illumination of individual letters is preferable to the illumination of the whole sign.
- UDR-7 Advertisements / Signage on side walls and at first floor level will not normally be allowed.
- UDR-8 Projecting signs shall not be allowed except in certain specific cases which would too should be restricted one sign per building and should not project more than 750 mm (including brackets). On illuminated signs, the letters only should be illuminated. Such Projecting Signs should be 3.5m above Road Level.
- UDR-9 Signs and advertisements on shop fronts will normally be restricted to ground floor front wall area in the space provided in the Urban Design Guidelines.

8.12.8 New Shopfronts / Renovated Building

- UDR-10 New shopfronts / Renovated Buildings should respect the scale and design of the premises in which they are installed.
- UDR-11 New shopfronts / Renovated Buildings should not involve the removal or alteration of features which are of historical or architectural interest.

- UDR-12 Existing windows should not be enlarged above ground floor level, nor should Ground Floor Façade theme extend above the level of the first floor window sills.
- UDR-13 New Façade should not link multiple building units which are individual and distinct.
- UDR-14 In Commercial areas, where owner requires a roller shutter then a roller grille should be provided in preference to a solid roller shutter. The roller box housing should be concealed where possible. Also, wherever possible Shutter should be on the inside shopfront / shopface such that Shopfront is visually accessible during closed hours.

8.12.9 Buildings in Heritage Zone

- UDR-15 The Authority expects the design of shopfronts and the fronts of commercial premises, to be of a high standard in Heritage Zone.
- UDR-16 Materials used should be in keeping with the character of the building.
- UDR-17 Where a commercial Corporate Style is required it should be adapted to particular building's existing theme.
- UDR-18 Stallrisers should be retained or replaced where they have previously been removed, as they provide a visual base to the shopfront. Stallriser can also act as Public Seating along Vehicular Street and should be encouraged.

8.12.10 Advertisements in Heritage Zone

- UDR-19 Advertisements within Heritage Zone should be designed so that they are in keeping with the character of the building and the area as a whole.
- UDR-20 Where illuminated advertisements should not be internally illuminated but externally lit by spotlight. Individually illuminated letters may be acceptable.
- UDR-21 Large / Modern illuminated signs and illuminated projecting signs on listed buildings / Heritage Street shall not be allowed. Advertisements should be

of a size, design and of materials that complement the character of the building / street.

8.12.11 Street Specific Guidelines

UDR-22 Every street has its distinct character by its economic and cultural value, it should be reflected by its design guidelines like:

- a) Some of the building with the distinct architecture style like Indo Saranic, Maratha style, Temple style should be preserved as it is with some modification in colour and design if required.
- b) In sarafa street, at upper floor level rectangular window proportion can be provide to provide uniformity in the design and 2' high signage space can be provided at spandrel area or at the top of window.
- c) Colour and design elements on building façade along with signage colours should be inspired by local heritage building in vicinity like Rajwada, Kanch Mandir, etc. which will provide the street its legibility.
- d) Design and colour of all the street and urban elements like railing, street light poles, urban signage, benches, etc. should be inspired from local heritage.
- e) Building colour and paving on the road should respond to each other.

8.13 Energy Efficient Building Regulations.

8.13.1 Provisions and Applicability

Any buildings on various plot sizes above 100 sq.m. shall comply with the green building norms and conform to the requirements of mandatory Solar roof top provision, as mentioned in these regulations below.

8.13.2 Roof Top Solar Energy Installations

Rooftop photovoltaic power station, or rooftop PV system, is a photovoltaic system that has its electricity-generating solar panels mounted on the rooftop of residential or non-residential buildings.

Table below stipulates the **Norms for Roof Top Solar PV Installation and generation**

Table 45 Norms for Roof top solar PV

S.no	Land use Zones	Generation requirements
1	Residential	Minimum 5% of connected load or 20W/sqft for "available roof space*", whichever is less.
2	Residential-Commercial	
3	Commercial	
4	Public-Semipublic & Public Utility-Facility.	
5	Transportation	
6	Recreational	

* "available roof area" = 65 % of the total roof size, considering 35 % area reserved for amenities.

8.13.2.1 Incentives

1. In order to encourage above, 5 % extra FAR, shall be given as an incentive by the IMC.
2. In case of non- compliance of Regulation no. 8.13.2, at the time of obtaining occupancy certificate, penalty (as premium on additional FAR) shall be levied for incentive FAR as follows:
 = (Incentive Additional FAR in Sqm.) x (50 % of the prevailing collector guideline rate)

8.13.3 Green building Norms

Green building/Energy efficient building regulations shall be as per Indian Green Building Council (IGBC) guidelines.

8.13.3.1 Incentives

1. In order to encourage above, 5 % extra FAR, shall be given as an incentive by the IMC.
3. In case of non- compliance of Regulation no. 8.13.3, at the time of obtaining occupancy certificate, penalty (as premium on additional FAR) shall be levied for incentive FAR as follows:
= (Incentive Additional FAR in Sqm.) x (50 % of the prevailing collector guideline rate)

CHAPTER 9: IMPLEMENTATION PLAN

9.1 Implementation Plan

The Module/components, Costs, timelines required to complete the implementation of area-based development and pan-city solution/s. are as follow

Table 46 Project Cost

S. No.	Name of Module	Name of Project	Project Cost (Rs. Crore)	Project Timeline	
				Start Date	End Date
1	Identify and Culture	Conservation, Restoration & Redevelopment of Rajwada, Indore (Phase I)	17.22	Aug 2017	Aug 2019
2		Built Heritage Conservation Gopal Mandir (Phase I)	14.03	July 2017	Jan 2019
3		Built Heritage Conservation Chhatri Bagh (Hari Rao Holkar Chhatri)	4.42	April 2017	July 2018
4		Heritage Street Development Heritage-focus (1.5 km)	2.50	Nov 2017	May 2018
5		Heritage Street Development Culture-focus (1.5 km)	1.50	Nov 2017	May 2018
6		Façade Development Street1 - Rajwada Precinct	10.00	Dec 2017	June 2019
7		Façade Development Street2	8.00	Jan 2018	Jan 2019
8		Façade Development Street3	4.00	Feb 2018	Nov 2018
9		Adaptive Reuse at Gopal Mandir Complex	10.00	Nov 2017	Feb 2019
10	Economy and Employment	Incubation center / skill devt center - Sanskrit College, Subhash Marg	5.00	Feb 2018	Feb 2019
11		Incubation center / skill devt center - MOG Lines Area	10.00	April 2018	Oct 2019

12	Transportation and Walkability	Improvement of Roads (Mhow-naka to Tori Corner)	18.46	Aug 2016	July 2017
13		Improvement of Roads (Vyas Bridge to Bada Ganpati and Bada Ganpati to Jinsi Bus Depot)	11.72	Aug 2016	July 2017
14		Improvement of Roads (Raj Mohalla to Bada Ganpati)	10.44	April 2017	Oct 2017
15		Construction of Chandrabhaga Bridge	5.03	Mar 2017	May 2018
16		Construction of Central Median and Erection of Electrical Pole on Biyabani Road & Subhash Marg, Indore.	2.46	Dec 2016	Sept 2017
17		Improvement of Eight Major Roads and Jawahar Marg Bridge along with construction of Footpath, RCC Utility Ducts, Storm Water Drainage and Central Divider	105.00	Sept 2017	Mar 2019
18		Improvement of Other Roads and Pedestrian Streets ABD Area (~25 km)	200.00	Dec 2017	Dec 2019
19		Improvement of Other Roads and Pedestrian Streets ABD Area (~25 km)	250.00	Nov 2017	Nov 2019
20		Development of Underpass / Flyover in ABD Area	50.00	Feb 2018	May 2019
21		Improvement of Junctions and Intersections + Signalization (pan city)	25.00	June 2018	June 2019
22		Construction of New River Bridge at Rambagh and Widening of Existing River Bridge at Harsiddhi	20.00	Mar 2018	Oct 2019
23		No-vehicle/ pedestrian zone	5.00	Dec 2017	Dec 2018

24		Development of Multilevel Car Parking in different locations of ABD Area - Various Locations	125.00	July 2018	Oct 2019
25		e-Rickshaws (125)	5.00	Mar 2019	Sep 2019
26	Urban Renewal / Beautification	Supply, Installation, Testing and Commissioning of 11KV & LT Underground Cabling System with Compact Substation on Biyabani and Subhash Marg, Indore under Smart City Mission	9.04	Nov 2016	July 2017
27		Laying of UG Gas Lines in ABD Area on PPP Model	30.00	May 2017	May 2018
28		Shifting of OH Powerlines to UG Cables in ABD Area	150.00	June 2018	Mar 2021
29	Building & Infrastructure Development	Infrastructural & Building Development Works of 7 Schools under Smart City Mission, Indore	5.69	Oct 2017	Oct 2019
30	Redevelopment	Slum Housing - at various locations in ABD Area (under PPP model)	150.00	June 2018	Sept 2021
31		Slum Housing - Lodha Colony and Sethi Nagar (960 units) - under PPP model	74.40	June 2018	Sept 2023
32		Compensatory Housing - MOG Lines Area under PPP Model	200.00	June 2018	Mar 2022
33		Free-Sale Housing - MOG Lines Area under PPP Model	1000.00	Sept 2017	Sept 2018
34		Infrastructure Development at MOG Lines Area under PPP Model	500.00	Sept 2017	Sept 2018

35	Physical Infrastructure	Transmission and Distribution Network for Potable Water (76.4 km), ESR 3 ML, GSR 6 ML, SCADA System with software, sensors, flow meters; Smart Meters 24000	98.59	Sept 2017	Sept 2018
36		Transmission and Distribution Network for Recycled Water (23.8 km), ESR 3 ML	10.46	Dec 2017	Sept 2018
37		Decentralized Wastewater Treatment System - New / Improved 42.4 km Sewerage Network, 24000 Svs Connections	53.75	Dec 2017	Mar 2019
38		Decentralized Wastewater Treatment System DEWATS - Construction of 10 MLD STP	12.88	Oct 2017	Oct 2018
39	Area Development	Redevelopment of Jinsi Haat Bazaar & Construction of Ancillary Buildings	9.12	Feb 2017	Feb 2018
40		Riverfront development works between Rambag Bridge to Krishnapura Bridge under Smart City Mission	3.57	July 2017	July 2018
41		Riverfront Development - M G Road to Jawahar Bridge	21.41	Sept 2017	Mar 2019
42		Riverfront Development - Chandrabhaga Bridge to Harsiddhi Bridge and Harsiddhi Park	4.36	April 2017	April 2018
43		Riverfront Development - Balance Stretch	20.00	Oct 2017	Oct 2019

44	Smart Solutions	Installation and O & M of LED Lights in Pan-city, Indore on PPP Model	180.00	Oct 2017	April 2020
45		Smart Poles Project including CCTV, Environmental Sensors, WiFi, C4 Integration, OFC, etc. under PPP Model	250.00	Oct 2017	Oct 2018
46		Smart Parking Management (Sensors, Hardware, Software, App devt, smart-cards) for MLCP - 3 Locations under PPP Model	2.00	June 2017	Oct 2017
47		On-street Parking Management System (Sensors, Hardware, Software, App development, smart-cards)	5.00	Nov 2017	May 2018
48		Implementation of Command Control and Communications Centre	35.00	Jan 2018	July 2018
49		Public facilitation centers (6)	4.50	April 2018	April 2019
50		Implementation of Smart Classrooms in Government Schools in Indore	2.67	Aug 2017	May 2018
51		Smart Health System	10.00	Oct 2017	Oct 2018
52		Traffic Management (Automated Traffic Control System, Regulatory Signage, Dynamic Message Boards, Web/Mobile Application)	100.00	Nov 2017	Feb 2019
53		Transit Management (Real-time Vehicle Tracking (RVT / CAD / AVL) and Fleet Management System, Passenger Information System, Video Surveillance)	50.00	Nov 2017	Feb 2019

54		Electronic Payment (Sensors, Hardware, Software, App development, smart-cards) for multiple modes	30.00	Nov 2017	Feb 2019
55		Applications for Citizens and Safai Mitra for data compilation on primary and secondary waste collection (Indore311)	2.50	Dec 2017	June 2018
56		Supply, Installation, Implementation and Maintenance of GPS based Vehicle Tracking Solution (VTS) for Municipal Solid Waste (MSW), CCTV Cameras at Community & Public Toilets and Integration of Weighbridge at Devguradia Landfill Site	1.29	Dec 2017	June 2018
57		Design, Development, Implementation and Operation & Maintenance of Integrated Solid Waste Management including Aadhar-based Biometric Attendance System	10.00	Nov 2017	May 2018
58		Implementation of Waste-to-Energy Plant on PPP Model	473.00	Nov 2017	May 2018
59	Smart Grid	Smart power grid for 24/7 un-interrupted power supply - Smart components in 33/11 KV Sub-stations - 2 no.s	10.00	Sept 2016	Dec 2016
60		Smart power grid for 24/7 un-interrupted power supply - Smart components in 11/0.44 KV Sub-stations - 125 no.s	12.00	Dec 2016	Mar 2020
61		Smart power grid for 24/7 un-interrupted power supply - Meters and Sensors 36 no.s	36.00	Aug 2017	Feb 2018
62		Smart energy meters (for consumer & distribution zone & Sub-stations) - 30000	45.00	Oct 2017	Oct 2019

63	Public Conveniences	Construction of 20 Community Toilets & Public Toilets	1.60	Sept 2016	Dec 2016
64		Door-door collection, segregation, storage & transportation of waste- HH Storage Bins- Area Storage Bins- Cycle/Auto Rickshaws	1.72	Aug 2016	Dec 2016
65	Solid Waste Management	Decentralised treatment of organic waste - 3 Bio-digesters 10 MTD each	1.80	Dec 2017	June 2018
66		Construction of Garbage Transfer Station at Sangam Nagar under Smart City Mission	0.95	June 2017	Dec 2017
67		Construction of Garbage Transfer Station at IT Park Indore under Smart City Mission	1.23	June 2017	Dec 2017
68		Construction of Garbage Transfer Station at Star Square MR-10 Indore under Smart City Mission	1.01	June 2017	Dec 2017
69		Construction of Garbage Transfer Station at specified locations in Indore under Smart City Mission	0.74	June 2017	Dec 2017
70		Construction of Garbage Transfer Station at Lalbag Indore under Smart City Mission	0.91	June 2017	Dec 2017
71		Supply, Erection and Commissioning of Transfer Station Equipments, 6 No. Static Compaction System with Loading Mechanism and 18 No. Detachable Containers 20 cum. capacity and 8 No. Hook Loader with vehicle	8.65	July 2017	Sept 2017

72	Energy conservation / renewable sources of energy	Solar Power plants on terraces / roofs of buildings 33.5 MW	200.00	Nov 2018	Aug - 2019
73		Solar Power plants on terraces / roofs of buildings / 2.5 MW	15.00	Jan 2018	May 2018

9.2 Development Phasing

The smart city ABD and pan-city proposal will be implemented in the Period of five years (2017-18 to 2022-23). The proposals have been phased and scheduled based on the physical sequencing, quantum of work, realistic time period required for implementation of each components/activities and possibility of revenue streams from some key activities to be ploughed back in the project investments. Following are the projects, projected as short, medium and long-term with respect to the project timeline.

Table 47 Project Timeline

		Short Term	Medium Term	Long Term						
S. No.	Name of Project	Project Timeline								
		2016	2017	2018	2019	2020	2021	2022	2023	
A	Identity and Culture									
1	Conservation, Restoration & Redevelopment of Rajwada, Indore (Phase I)									
2	Built Heritage Conservation Gopal Mandir (Phase I)									
3	Built Heritage Conservation Chhatri Bagh (Hari Rao Holkar Chhatri)									
4	Heritage Street Development Heritage-focus (1.5 km)									
5	Heritage Street Development Culture-focus (1.5 km)									
6	Façade Development Street1 - Rajwada Precinct									
7	Façade Development Street2									
8	Façade Development Street3									
9	Adaptive Reuse at Gopal Mandir Complex									
B	Economy and Employment									
10	Incubation center / skill devt center - Sanskrit College, Subhash Marg									
11	Incubation center / skill devt center - MOG Lines Area									

C	Transportation and Walkability								
12	Improvement of Roads (Mhow-naka to Tori Corner)	■	■						
13	Improvement of Roads (Vyas Bridge to Bada Ganpati and Bada Ganpati to Jinsi Bus Depot)	■	■						
14	Improvement of Roads (Raj Mohalla to Bada Ganpati)		■						
15	Construction of Chandrabhaga Bridge		■	■					
16	Construction of Central Median and Erection of Electrical Pole on Biyabani Road & Subhash Marg, Indore.	■	■						
17	Improvement of Eight Major Roads and Jawahar Marg Bridge along with construction of Footpath, RCC Utility Ducts, Storm Water Drainage and Central Divider		■	■	■				
18	Improvement of Other Roads and Pedestrian Streets (ABD Area (~25 km)		■	■	■				
19	Improvement of Other Roads and Pedestrian Streets (ABD Area (~25 km)		■	■	■				
20	Development of Underpass / Flyover in ABD Area			■	■				
21	Improvement of Junctions and Intersections + Signalization (pan city)			■	■				
22	Construction of New River Bridge at Rambagh and Widening of Existing River Bridge at Harsiddhi			■	■				
23	No-vehicle/ pedestrian zone		■	■					
24	Development of Multilevel Car Parking in different locations of ABD Area - Various Locations			■	■				
25	e-Rickshaws (125)				■				
D	Urban Renewal / Beautification								
26	Supply, Installation, Testing and Commissioning of 11KV & LT Underground Cabling System with Compact Substation on Biyabani	■	■						

	and Subhash Marg, Indore under Smart City Mission								
27	Laying of UG Gas Lines in ABD Area on PPP Model								
28	Shifting of OH Powerlines to UG Cables in ABD Area								
E	Building & Infrastructure Development								
29	Infrastructural & Building Development Works of 7 Schools under Smart City Mission, Indore								
F	Redevelopment								
30	Slum Housing - at various locations in ABD Area (under PPP model)								
31	Slum Housing - Lodha Colony and Sethi Nagar (960 units) - under PPP model								
32	Compensatory Housing - MOG Lines Area under PPP Model								
33	Free-Sale Housing - MOG Lines Area under PPP Model								
34	Infrastructure Development at MOG Lines Area under PPP Model								
G	Physical Infrastructure								
35	Transmission and Distribution Network for Potable Water (76.4 km), ESR 3 ML, GSR 6 ML, SCADA System with software, sensors, flow meters; Smart Meters 24000								
36	Transmission and Distribution Network for Recycled Water (23.8 km), ESR 3 ML								
37	Decentralized Wastewater Treatment System - New / Improved 42.4 km Sewerage Network, 24000 Svs Connections								
38	Decentralized Wastewater Treatment System DEWATS - Construction of 10 MLD STP								
H	Area Development								
39	Redevelopment of Jinsi Haat Bazaar & Construction of Ancillary Buildings								

40	Riverfront development works between Rambag Bridge to Krishnapura Bridge under Smart City Mission								
41	Riverfront Development - M G Road to Jawahar Bridge								
42	Riverfront Development - Chandrabhaga Bridge to Harsiddhi Bridge and Harsiddhi Park								
43	Riverfront Development - Balance Stretch								
I	Smart Solutions and Urban Reforms								
44	Installation and O & M of LED Lights in Pan-city, Indore on PPP Model								
J	Smart Solutions and Urban Reforms								
45	Smart Poles Project including CCTV, Environmental Sensors, WiFi, C4 Integration, OFC, etc. under PPP Model								
46	Smart Parking Management (Sensors, Hardware, Software, App devt, smart-cards) for MLCP - 3 Locations under PPP Model								
47	On-street Parking Management System (Sensors, Hardware, Software, App development, smart-cards)								
48	Implementation of Command Control and Communications Centre								
49	Public facilitation centers (6)								
50	Implementation of Smart Classrooms in Government Schools in Indore								
51	Smart Health System								
52	Traffic Management (Automated Traffic Control System, Regulatory Signage, Dynamic Message Boards, Web/Mobile Application)								
53	Transit Management (Real-time Vehicle Tracking (RVT / CAD / AVL) and Fleet Management System, Passenger Information System, Video Surveillance)								

54	Electronic Payment (Sensors, Hardware, Software, App development, smart-cards) for multiple modes								
55	Applications for Citizens and Safai Mitra for data compilation on primary and secondary waste collection (Indore311)								
56	Supply, Installation, Implementation and Maintenance of GPS based Vehicle Tracking Solution (VTS) for Municipal Solid Waste (MSW), CCTV Cameras at Community & Public Toilets and Integration of Weighbridge at Devguradia Landfill Site								
57	Design, Development, Implementation and Operation & Maintenance of Integrated Solid Waste Management including Aadhar-based Biometric Attendance System								
58	Implementation of Waste-to-Energy Plant on PPP Model								
K	Smart Grid								
59	Smart power grid for 24/7 un-interrupted power supply - Smart components in 33/11 KV Sub-stations - 2 no.s								
60	Smart power grid for 24/7 un-interrupted power supply - Smart components in 11/0.44 KV Sub-stations - 125 no.s								
61	Smart power grid for 24/7 un-interrupted power supply - Meters and Sensors 36 no.s								
62	Smart energy meters (for consumer & distribution zone & Sub-stations) - 30000								
L	Public Conveniences								
63	Construction of 20 Community Toilets & Public Toilets								
M	Solid Waste Management								
64	Door-door collection, segregation, storage & transportation of waste- HH Storage Bins- Area Storage Bins- Cycle/Auto Rickshaws								

65	Decentralised treatment of organic waste - 3 Bio-digesters 10 MTD each								
66	Construction of Garbage Transfer Station at Sangam Nagar under Smart City Mission								
67	Construction of Garbage Transfer Station at IT Park Indore under Smart City Mission								
68	Construction of Garbage Transfer Station at Star Square MR-10 Indore under Smart City Mission								
69	Construction of Garbage Transfer Station at specified locations in Indore under Smart City Mission								
70	Construction of Garbage Transfer Station at Lalbag Indore under Smart City Mission								
71	Supply, Erection and Commissioning of Transfer Station Equipments, 6 No. Static Compaction System with Loading Mechanism and 18 No. Detachable Containers 20 cum. capacity and 8 No. Hook Loader with vehicle								
N	Energy conservation / renewable sources of energy								
72	Solar Power plants on terraces / roofs of buildings 33.5 MW								
73	Solar Power plants on terraces / roofs of buildings / 2.5 MW								

9.3 Institutional Framework

The SPV is a critical institution for the implementation of the Smart city Proposal. The details of its Functions and organizational structure are as follows:

The functional mandate of the SPV includes:

Project Development and Financing: Detailed design, planning and structuring of smart city projects as well as facilitating inter-departmental coordination. This would include procurement of services from various consultants and advisors for project development and financing.

Project Implementation and O&M Monitoring: Engage the private partner for implementation of ABD and Pan-city proposal under SCP, procure services of developer and/or appoint concessionaire for implementation of the project, and support them by establishing project specific SPVs as JVs between SPV and private partner, facilitate government approvals, statutory clearances and sanctions, citizen engagement, timely disbursement of public investments committed to the projects and implementation monitoring throughout the implementation and O&M period.

Organizational Structure of the SPV

The Organizational Structure of the SPV has been structured as Five divisions as Planning, Engineering, Administrative, IT & Account.

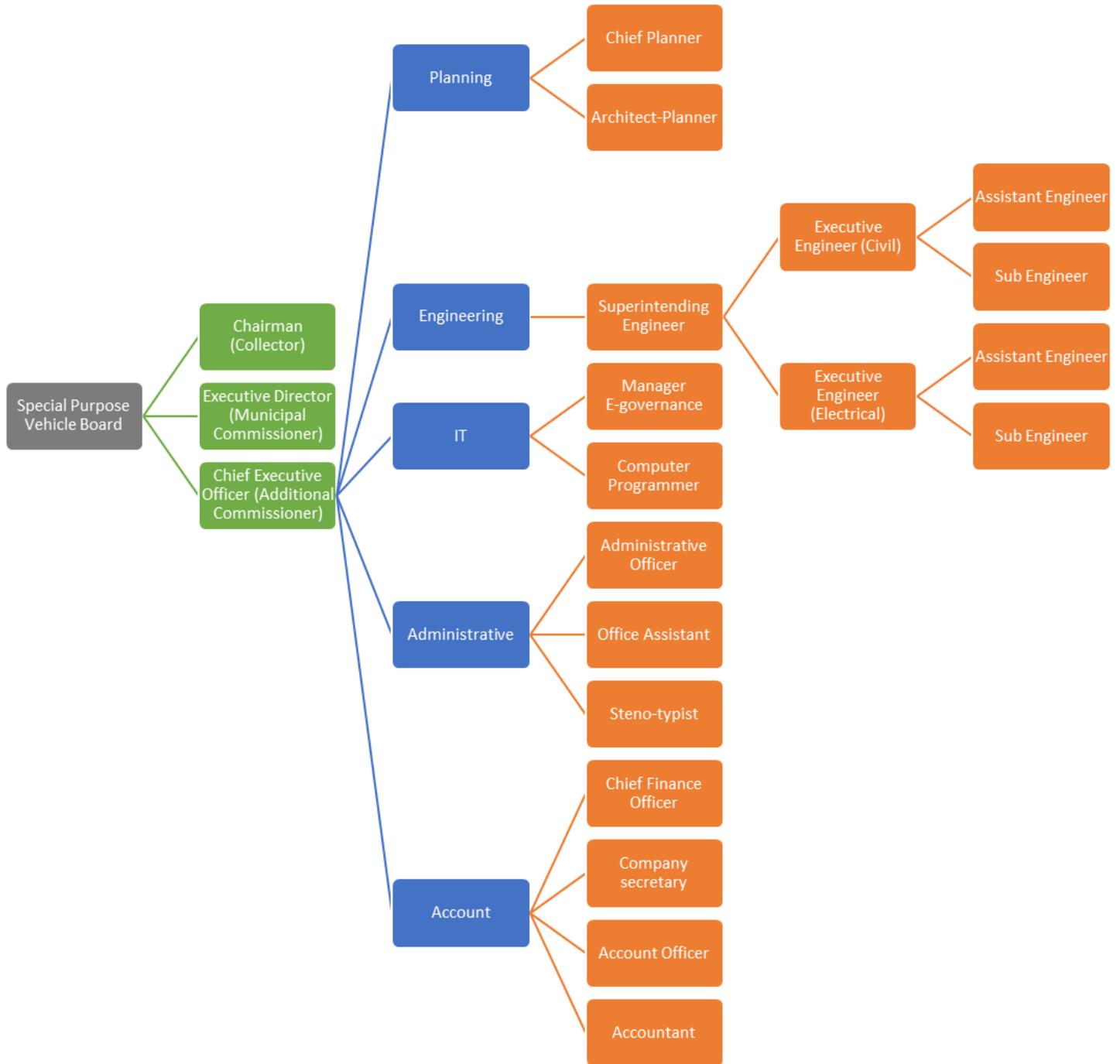


Figure 80 Organization Structure

Organogram for Stakeholders Role

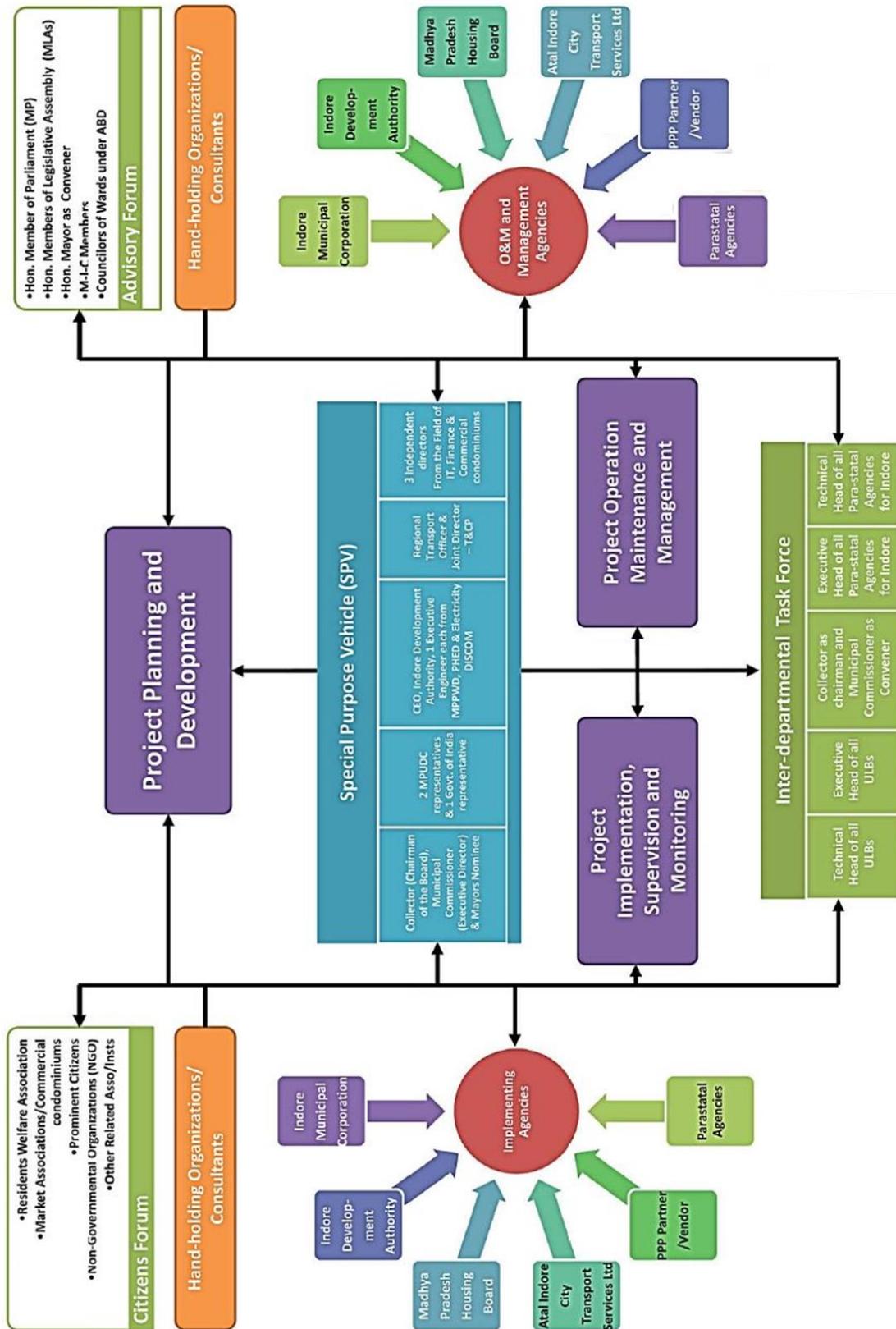


Figure 81 Organogram for Stakeholder Role

9.4 Financial Plan

9.5.1 Costs

The total project cost of the Smart City is described in detail as the costs for each of the Module/components.

Table 48 Project cost & Source of Finance

S. No.	Name of Module	Name of Project	Project Cost (Rs. Crore)	SOURCE OF FINANCE (in Crore)				
				SCP	PPP	CONV	BONDS	DEBT
1	Identity and Culture	Conservation, Restoration & Redevelopment of Rajwada, Indore (Phase I)	17.22	17.22				
2	Identity and Culture	Built Heritage Conservation Gopal Mandir (Phase I)	14.03	14.03				
3	Identity and Culture	Built Heritage Conservation Chhatri Bagh (Hari Rao Holkar Chhatri)	4.42	4.42				
4	Identity and Culture	Heritage Street Development Heritage-focus (1.5 km)	2.50	2.50				
5	Identity and Culture	Heritage Street Development Culture-focus (1.5 km)	1.50	1.50				
6	Identity and Culture	Façade Development Street1 - Rajwada Precinct	10.00	10.00				
7	Identity and Culture	Façade Development Street2	8.00	8.00				
8	Identity and Culture	Façade Development Street3	4.00	4.00				
9	Identity and Culture	Adaptive Reuse at Gopal Mandir Complex	10.00	10.00				
10	Economy and Employment	Incubation center / skill devt center - Sanskrit College, Subhash Marg	5.00	5.00			5.00	
11	Economy and Employment	Incubation center / skill devt center - MOG Lines Area	10.00	10.00			10.00	
12	Transportation and Walkability	Improvement of Roads (Mhow-naka to Tori Corner)	18.46	18.46				

13	Transportation and Walkability	Improvement of Roads (Vyas Bridge to Bada Ganpati and Bada Ganpati to Jinsi Bus Depot)	11.72	11.72				
14	Transportation and Walkability	Improvement of Roads (Raj Mohalla to Bada Ganpati)	10.44	10.44				
15	Transportation and Walkability	Construction of Chandrabhaga Bridge	5.03	5.03				
16	Transportation and Walkability	Construction of Central Median and Erection of Electrical Pole on Biyabani Road & Subhash Marg, Indore.	2.46	2.46				
17	Transportation and Walkability	Improvement of Eight Major Roads and Jawahar Marg Bridge along with construction of Footpath, RCC Utility Ducts, Storm Water Drainage and Central Divider	105.00	105.00				
18	Transportation and Walkability	Improvement of Other Roads and Pedestrian Streets ABD Area (~25 km)	200.00	200.00				
19	Transportation and Walkability	Improvement of Other Roads and Pedestrian Streets ABD Area (~25 km)	250.00	250.00				
20	Transportation and Walkability	Development of Underpass / Flyover in ABD Area	50.00	50.00				
21	Transportation and Walkability	Improvement of Junctions and Intersections + Signalization (pan city)	25.00	25.00				
22	Transportation and Walkability	Construction of New River Bridge at Rambagh and Widening of Existing River Bridge at Harsiddhi	20.00	20.00				
23	Transportation and Walkability	No-vehicle/ pedestrian zone	5.00	5.00				
24	Transportation and Walkability	Development of Multilevel Car Parking in different locations of ABD Area - Various Locations	125.00				125.00	

25	Transportation and Walkability	e-Rickshaws (125)	5.00	5.00			5.00	
26	Urban Renewal / Beautification	Supply, Installation, Testing and Commissioning of 11KV & LT Underground Cabling System with Compact Substation on Biyabani and Subhash Marg, Indore under Smart City Mission	9.04	9.04				
27	Building & Infrastructure Development	Infrastructural & Building Development Works of 7 Schools under Smart City Mission, Indore	5.69	5.69				
28	Redevelopment	Slum Housing - at various locations in ABD Area (under PPP model)	150.00		150.00			
29	Redevelopment	Slum Housing - Lodha Colony and Sethi Nagar (960 units) - under PPP model	74.40		74.40			
30	Redevelopment	Compensatory Housing - MOG Lines Area under PPP Model	200.00		200.00			
31	Redevelopment	Free-Sale Housing - MOG Lines Area under PPP Model	1000.00		1000.00			
32	Redevelopment	Infrastructure Development at MOG Lines Area under PPP Model	500.00		500.00			
33	Physical Infrastructure	Transmission and Distribution Network for Potable Water (76.4 km), ESR 3 ML, GSR 6 ML, SCADA System with software, sensors, flow meters; Smart Meters 24000	98.59					98.59
34	Physical Infrastructure	Transmission and Distribution Network for Recycled Water (23.8 km), ESR 3 ML	10.46					10.46
35	Physical Infrastructure	Decentralized Wastewater Treatment System - New / Improved 42.4 km Sewerage Network, 24000 Svs Connections	53.75					53.75

36	Physical Infrastructure	Decentralized Wastewater Treatment System DEWATS - Construction of 10 MLD STP	12.88					12.88
37	Urban Renewal / Beautification	Laying of UG Gas Lines in ABD Area on PPP Model	30.00		30.00			
38	Urban Renewal / Beautification	Shifting of OH Powerlines to UG Cables in ABD Area	150.00	150.00				
39	Area Development	Redevelopment of Jinsi Haat Bazaar & Construction of Ancillary Buildings	9.12	9.12				
40	Area Development	Riverfront development works between Rambag Bridge to Krishnapura Bridge under Smart City Mission	3.57	3.57				
41	Area Development	Riverfront Development - M G Road to Jawahar Bridge	21.41	21.41				
42	Area Development	Riverfront Development - Chandrabhaga Bridge to Harsiddhi Bridge and Harsiddhi Park	4.36	4.36				
43	Area Development	Riverfront Development - Balance Stretch	20.00	20.00				
44	Smart Solutions	Smart Poles Project including CCTV, Environmental Sensors, WiFi, C4 Integration, OFC, etc. under PPP Model	250.00		250.00			
45	Smart Solutions and Urban Reforms	Installation and O & M of LED Lights in Pan-city, Indore on PPP Model	180.00		180.00			
46	Smart Solutions	Smart Parking Management (Sensors, Hardware, Software, App devt, smart-cards) for MLCP - 3 Locations under PPP Model	2.00		2.00			

47	Smart Solutions	On-street Parking Management System (Sensors, Hardware, Software, App development, smart-cards)	5.00		5.00			
48	Smart Solutions	Implementation of Command Control and Communications Centre	35.00	35.00				
49	Smart Solutions	Public facilitation centers (6)	4.50				4.50	
50	Smart Solutions	Implementation of Smart Classrooms in Government Schools in Indore	2.67	2.67				
51	Smart Solutions	Smart Health System	10.00	10.00				
52	Smart Solutions	Traffic Management (Automated Traffic Control System, Regulatory Signage, Dynamic Message Boards, Web/Mobile Application)	100.00					100.00
53	Smart Solutions	Transit Management (Real-time Vehicle Tracking (RVT / CAD / AVL) and Fleet Management System, Passenger Information System, Video Surveillance)	50.00					50.00
54	Smart Solutions	Electronic Payment (Sensors, Hardware, Software, App development, smart-cards) for multiple modes	30.00					30.00
55	Smart Grid	Smart power grid for 24/7 un-interrupted power supply - Smart components in 33/11 KV Sub-stations - 2 no.s	10.00	10.00				
56	Smart Grid	Smart power grid for 24/7 un-interrupted power supply - Smart components in 11/0.44 KV Sub-stations - 125 no.s	12.00	12.00				
57	Smart Grid	Smart power grid for 24/7 un-interrupted power supply - Meters and Sensors 36 no.s	36.00	36.00				

58	Smart Grid	Smart energy meters (for consumer & distribution zone & Sub-stations) - 30000	45.00	45.00				
59	Smart Solutions	Applications for Citizens and Safai Mitra for data compilation on primary and secondary waste collection (Indore311)	2.50			2.50		
60	Smart Solutions	Supply, Installation, Implementation and Maintenance of GPS based Vehicle Tracking Solution (VTS) for Municipal Solid Waste (MSW), CCTV Cameras at Community & Public Toilets and Integration of Weighbridge at Devguradia Landfill Site	1.29	1.29				
61	Smart Solutions	Design, Development, Implementation and Operation & Maintenance of Integrated Solid Waste Management including Aadhar-based Biometric Attendance System	10.00	10.00				
62	Smart Solutions	Implementation of Waste-to-Energy Plant on PPP Model	473.00		473.00			
63	Public Conveniences	Construction of 20 Community Toilets & Public Toilets	1.60			1.60		
64	Solid Waste Management	Door-door collection, segregation, storage & transportation of waste- HH Storage Bins- Area Storage Bins- Cycle/Auto Rickshaws	1.72			1.72		
65	Solid Waste Management	Decentralised treatment of organic waste - 3 Bio-digesters 10 MTD each	1.80			1.80		
66	Solid Waste Management	Construction of Garbage Transfer Station at Sangam Nagar under Smart City Mission	0.95			0.95		

67	Solid Waste Management	Construction of Garbage Transfer Station at IT Park Indore under Smart City Mission	1.23			1.23		
68	Solid Waste Management	Construction of Garbage Transfer Station at Star Square MR-10 Indore under Smart City Mission	1.01			1.01		
69	Solid Waste Management	Construction of Garbage Transfer Station at specified locations in Indore under Smart City Mission	0.74			0.74		
70	Solid Waste Management	Construction of Garbage Transfer Station at Lalbag Indore under Smart City Mission	0.91			0.91		
71	Solid Waste Management	Supply, Erection and Commissioning of Transfer Station Equipments, 6 No. Static Compaction System with Loading Mechanism and 18 No. Detachable Containers 20 cum. capacity and 8 No. Hook Loader with vehicle	8.65			8.65		
72	Energy conservation / renewable sources of energy	Solar Power plants on terraces / roofs of buildings 33.5 MW	200.00					200.00
73	Energy conservation / renewable sources of energy	Solar Power plants on terraces / roofs of buildings / 2.5 MW	15.00					15.00
Total project Cost			4765.62	1179.93	2864.40	36.11	134.50	570.68

9.5.2 Resources Plan

- The financial resource planning has been done considering use of GoI and GoMP assistance as a seed capital for Smart City Implementation and the same shall be recovered by the end of 5-year mission period to be used as seed capital for future replicable models of ABD and Pan-City proposals. (Reference Table 48)
- The total project investments under Indore SCP (including ABD and Pan-City Proposals) to be spent across period (2016-17 to 2022-23) is INR 4765.62 Crs. The proposed financing sources, which can be used to fund the SCP and pay back loans, are:
 1. Tied Grant from Government of India (Goi) Under Scm/Imc Equity
 2. Equity from Government of Madhya Pradesh (Gomp).
 3. Convergence with Grants from Goi/Gomp as
 - Swachh Bharat Mission (SBM).
 - National Urban Livelihood Mission (NULM)
 4. Municipal Bonds

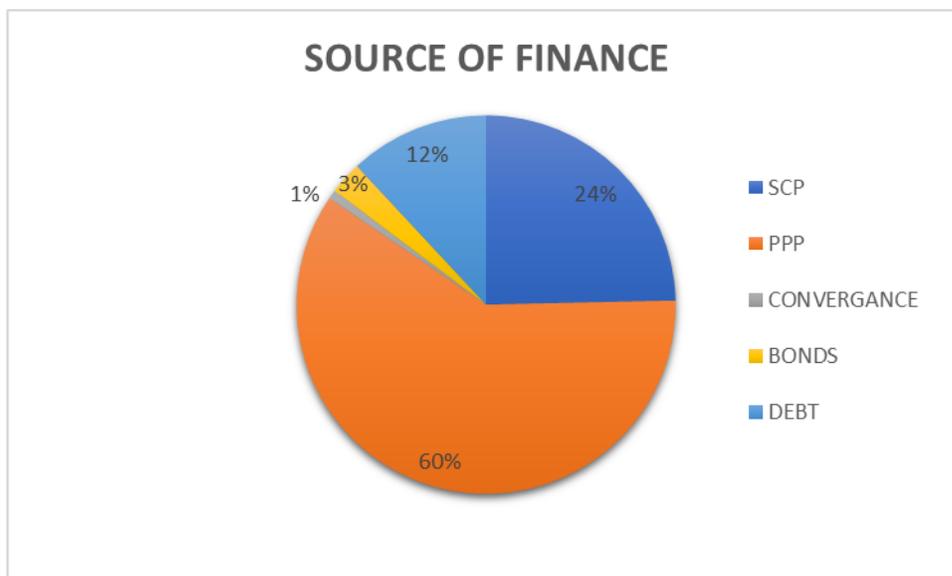


Figure 82 Source of Finance

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