

Human-Centric Residential Neighbourhood Planning Along Super Corridor, Indore

Bachelor of Planning

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MAY-2026

Human-Centric Residential Neighborhood Planning Along Super Corridor, Indore

A Thesis Project

*Submitted for partial fulfilment of the requirement
for the award of the degree
Bachelor of Planning*

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CANDIDATE'S DECLARATION

I VIBHORE JOSHI, Scholar No. 2211002107 hereby declare that the thesis titled HUMAN-CENTRIC RESIDENTIAL NEIGHBOURHOOD PLANNING ALONG SUPER CORRIDOR, INDORE, submitted by me in partial fulfilment for the award of degree of Bachelor of Planning, at Maulana Azad National Institute of Technology, Bhopal, India, is a record of Bonafide work carried out by me. The matter/result embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

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This is to certify that the declaration of **VIBHORE JOSHI** is true to the best of my knowledge and that the student has worked under my guidance for one semester in preparing this thesis.

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ABSTRACT

Super Corridor Indore is one of the most important urban growth areas in central India. It has experienced an increased investment in infrastructure, metro rail lines, growing institutions and economic activity driven by IT. New residences and commercial projects have sprung up in a short amount of time—however most of it appears to be somewhat disjointed and car-oriented in the last decade. Even though there are large transportation systems and big institutions in the area, there is not much walkability, neighborhood connectivity or social infrastructure. Low-cost housing and climate-friendly public places are not available, either. As things unfold it is apparent there is a clear division between the ideal vision of the city and the reality of the neighborhood. This thesis digs into how the Super Corridor is shaping up and lays out a neighborhood planning framework centered around people. It is an extension of the concept of TOD with modifications to suit the social, climatic and institutional environment of Indore. To address this, the research focuses on increasing walkability, accessibility, environmental resilience, mixed income housing and enhancing the quality of public spaces through specific planning actions. It all comes together in the GIS-based spatial analysis, satellite image interpretation, land use mapping, field surveys, policy reviews, TOD assessment, and comparative case studies. First, the research breaks down the present scenario regarding land use, block shape, pedestrians, TOD zone, social service facilities, open space, public transport, and housing cost. Then with the above background, the thesis suggests a holistic approach towards urban neighborhood planning. The research also highlights some deficiencies in current practice, including the lack of extensive open space, lack of pedestrian and cycle facility, insufficient last mile connectivity to metro stations, poor public open space availability, inadequate neighborhood level social facilities, and affordable housing. It includes TOD zoning system, walkable block system, mixed-use system, non-motorized transit system, ecological infrastructure, and inclusive housing system. Finally, some approaches to implementing the suggested neighborhood plan are given, such as regulatory changes, incremental implementation, institutional coordination, and financing options like land value capture and cross-subsidy. In conclusion, the research suggests that only transit infrastructure is not sufficient; there is also a need for an integrated approach to neighborhood planning. The framework provided here provides an addressed model for urban expansion in fast-growing Indian cities to be directed towards living up to the ideals of livability, sustainability and social inclusion in the process of urban expansion.

सरांश

इंदौर का सुपर कॉरिडोर मध्य भारत के सबसे महत्वपूर्ण शहरी विकास गलियारों में से एक के रूप में उभरकर सामने आया है। मेट्रो रेल परियोजना, आईटी निवेश, संस्थागत विकास तथा तीव्र अवसंरचनात्मक विस्तार के कारण पिछले एक दशक में इस क्षेत्र में तीव्र शहरीकरण हुआ है। हालांकि, यह विकास मुख्यतः खंडित, वाहन-केन्द्रित तथा असंतुलित रूप में हुआ है। प्रमुख परिवहन अवसंरचना और संस्थागत निवेश होने के बावजूद वर्तमान शहरी स्वरूप में पैदल चलने योग्य वातावरण, पड़ोस स्तरीय संपर्क, सामाजिक अवसंरचना, किफायती आवास तथा जलवायु-संवेदनशील सार्वजनिक स्थलों का अभाव दिखाई देता है। परिणामस्वरूप, व्यापक स्तर की योजना दृष्टि और वास्तविक पड़ोस-स्तरीय शहरी विकास के बीच स्पष्ट असंगति देखने को मिलती है। यह शोध सुपर कॉरिडोर की वर्तमान शहरी संरचना का विश्लेषण करते हुए एक मानव-केंद्रित पड़ोस नियोजन रूपरेखा प्रस्तुत करता है, जो ट्रांजिट ओरिएंटेड डेवलपमेंट (TOD) सिद्धांतों पर आधारित है तथा इंदौर की सामाजिक, आर्थिक, जलवायुगत एवं संस्थागत परिस्थितियों के अनुरूप विकसित की गई है। अध्ययन का मुख्य उद्देश्य पैदल यातायात, सार्वजनिक पहुंच, पर्यावरणीय स्थिरता, समावेशी आवास तथा सार्वजनिक क्षेत्र की गुणवत्ता में सुधार करना है। अध्ययन में मिश्रित शोध पद्धति का उपयोग किया गया है, जिसमें GIS आधारित स्थानिक विश्लेषण, सैटेलाइट इमेजरी अध्ययन, भूमि उपयोग मानचित्रण, फील्ड सर्वेक्षण, नीतिगत समीक्षा, TOD मूल्यांकन तथा तुलनात्मक केस स्टडी विश्लेषण शामिल हैं। अध्ययन क्षेत्र का विश्लेषण भूमि उपयोग वितरण, ब्लॉक संरचना, पैदल अवसंरचना, TOD प्रभाव क्षेत्र, सामाजिक सुविधाओं की उपलब्धता, हरित क्षेत्र वितरण, परिवहन नेटवर्क तथा आवासीय वहनीयता जैसे विभिन्न मापदंडों के आधार पर किया गया। विश्लेषण से यह स्पष्ट हुआ कि क्षेत्र में अत्यधिक बड़े सुपरब्लॉक्स, पैदल एवं साइकिल अवसंरचना की कमी, मेट्रो की कमजोर अंतिम-मील कनेक्टिविटी, अपर्याप्त सार्वजनिक खुले क्षेत्र, सामाजिक सुविधाओं का अभाव तथा सीमित किफायती आवास जैसी गंभीर नियोजन समस्याएँ मौजूद हैं। इन निष्कर्षों के आधार पर शोध में एक व्यापक पड़ोस नियोजन ढांचा विकसित किया गया है, जिसमें TOD ज़ोनिंग संरचना, वॉकएबल ब्लॉक मानक, मिश्रित भूमि उपयोग दिशानिर्देश, गैर-मोटर चालित परिवहन नेटवर्क, पारिस्थितिक अवसंरचना प्रणाली तथा समावेशी आवास रणनीतियाँ सम्मिलित हैं। इसके अतिरिक्त, अध्ययन में नियामक सुधार, चरणबद्ध विकास, संस्थागत समन्वय तथा भूमि मूल्य संवर्धन एवं क्रॉस-सब्सिडी जैसे वित्तीय तंत्रों के माध्यम से कार्यान्वयन रणनीतियाँ भी प्रस्तावित की गई हैं। अध्ययन यह निष्कर्ष प्रस्तुत करता है कि केवल परिवहन अवसंरचना का विकास सतत एवं समावेशी शहरी विकास सुनिश्चित नहीं कर सकता, जब तक कि उसे मानव-केंद्रित पड़ोस नियोजन, सार्वजनिक क्षेत्र की गुणवत्ता तथा पर्यावरणीय संवेदनशीलता के साथ एकीकृत न किया जाए। प्रस्तुत रूपरेखा तीव्र गति से विकसित हो रहे भारतीय शहरों के लिए एक व्यावहारिक एवं संदर्भ-संवेदनशील मॉडल प्रदान करती है, जो अवसंरचना-आधारित विकास को रहने योग्य, समावेशी एवं सतत शहरी विकास में परिवर्तित करने की दिशा में सहायक हो सकती है।

Acknowledgement

Without the guidance and encouragement provided by Dr. Bulbul Shukla, this thesis could never have seen light. Every suggestion and criticism has added value to the thesis. Thanks also to the faculty members and other staff working at the Department of Architecture and Planning, MANIT Bhopal, for creating the academic environment and providing the resources necessary for completing this task. The intellectual discussions in classes and corridor helped immensely, even though their worth is hard to quantify. Support from my family during the tough times of the year was invaluable. Their patience on those days when the task did not seem to be progressing well was highly appreciated. My friends who checked on me at appropriate times should also be mentioned here. Many organizations provided the necessary data and other documents required for the research work conducted in the field and analysis done subsequently – IDA, MPMRCCL, IMC, and many others.

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CHAPTER 1: INTRODUCTION

1.0 Background and Planning Context

1.1 Indore: India's Fastest-Growing Tier-1 City

Figure No. 10: Satellite Image – Super Corridor Alignment with TOD Influence Overlay

Indore, the commercial capital of Madhya Pradesh, is one of the fastest-growing cities in central India. The population of the city has increased from around 1.8 million in 2005 to an estimated figure of 3.2 million in 2024. Besides being the hub for textiles and commerce, the economic structure of the city has now diversified into areas such as information technology, pharmaceuticals, financial services, and higher education – a diversification that is evident in the expansion pattern of new urban zones, including the Super Corridor. Having won nine consecutive times in the Swachh Bharat Mission's 'India's Cleanest City' campaign, Indore has developed a brand name that attracts both private sector investment and highly-skilled immigrants to the city. However, this reputation has also generated pressure in the form of uncontrolled development activity in the peripheral areas of the city, which sees the co-existence of planned IT corridors and institutional campuses amid unplanned residential development. The pressure generated in this area is the most pronounced in the Super Corridor project

1.2 The Super Corridor: Planning History and Strategic Designation

The Super Corridor was conceived in the early 2010s as Indore's strategic response to the national push for IT-enabled economic development under the DMIC (Delhi-Mumbai Industrial Corridor) and Smart Cities frameworks. The corridor's formal designation as a Knowledge and IT City Zone under the Indore Master Plan 2035 (MP-2035) was accompanied by a series of important decisions: the allocation of major IT campuses to TCS and Infosys, the relocation of IIM Indore to the corridor's western edge, the siting of RGPV and Devi Ahilya University's new campuses in proximity, and the alignment of the Metro Yellow Line along the corridor's length. (IDA, 2014; Ministry of Urban Development, 2015)

These decisions collectively established the Super Corridor as a world-class knowledge economy corridor on paper. The Metro Yellow Line — 31.54 km in length with 29 stations, of which six are located on the Super Corridor — provides one of the most significant investments in public transit infrastructure that Indore has ever seen. The corridor's NH-52 alignment, upgraded to a 60–90 m right-of-way, connects the Ring Road junction at the north end to Devi Ahilyabai Holkar International Airport at the south — a distance of approximately 17 km that covers the three revenue villages of Vijay Nagar Extension, Scheme 54, and Limbodi. (MPMRCCCL, 2022; MoHUA, 2017)

However, 10 years after the corridor was designated, and five years after metro, the situation stood as it did in 2025. The infrastructure construction was started, the residential and neighbourhood fabric forming. A remarkable situation exists on the corridor: billion-rupee metro stations service areas where no continuous footpaths; Knowledge workers in thousands flock to IT campuses. 1. Do not generate any mixed-use activation at the street level; and residential developments. Areas ranging between 15 to 20 hectares, or more, are the design boundaries for the approved plans under IDA layout. Despite being made of walls, a security barrier and no public-realm infrastructure. (Murthy and Thakkar 2019 as well as Ballaney and Patel 2009).

1.1 Regional Location and Study Area

The study area falls in the south periphery of Indore on the NH-52 alignment. Side, making a total of about 17 km in length with a implementation area of 1 km on each side. On one side of the corridor axis, a study area of around 32 km² was established. The formal The framework for this thesis — the area that is detailed, proposed and analysed; Implementation planning — involves 580ha in three revenue villages bounded to Tamaraudi, and to the east and west by the outskirts of the city. The BRTS offers a main road from the north of the city, while Tamaraudi to the south is the Indore-Dewas National Highway. Towards south is Highway and towards East it is the IIM Indore Campus and towards West is the Super Corridor. Expressway.

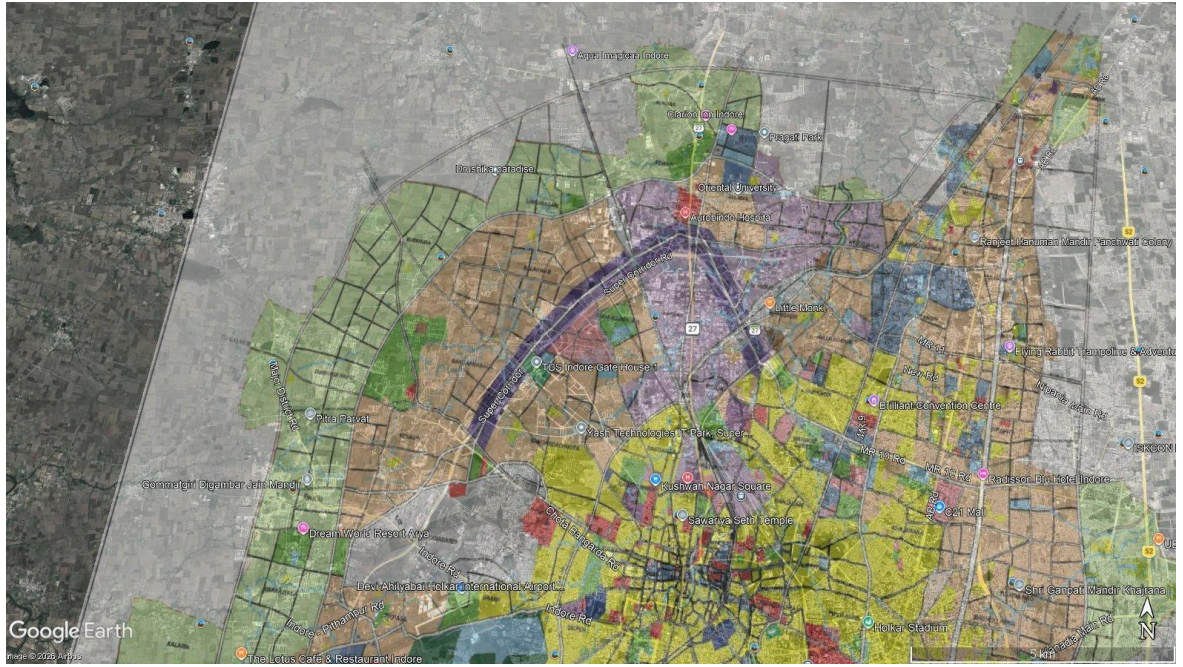


Fig. No. 1: Regional Location Map – Indore and Super Corridor in Madhya Pradesh

Regional Location of the Super Corridor within the Urban Fabric of Indore is shown in Figure 1, Below. The corridor was also illustrated to show the links between the existing City Centre and the Ring Road, respectively, and the City Centre. The airport. The satellite image above makes it obvious that the corridor has a linear structure, element of the line that designates its course along a series of green institutional campuses and the passage from (land)urban to (land)natural. Its line is juxtaposed with several green institutional campuses and the leap from (land)urban to (land)natural. The north primarily has denser urban developments while the south is more peri-urban.

Table No. 1: Study Area at a Glance

Parameter	Details
Location	Super Corridor / NH-52 alignment, Indore, Madhya Pradesh
Study Extent	580 ha 17 km linear stretch from Ring Road to Krishnaganj
Width of ROW	60–90 m (proposed); 45–55 m (currently built)
Buffer Zone	1 km either side of corridor axis $\approx$ 32 km ² study zone
Jurisdiction	IDA Layout Zones 4, 5, and 6; IMC Zone-G
Revenue Villages	Vijay Nagar Extension, Scheme 54, Limbodi
Total Study Area Population	~15,000 residents (2025); projected 80,000–120,000 at full build-out
TOD Coverage	70% of study area within 800 m TOD influence zone
Metro Stations (on corridor)	6 stations (T1–T5 + Airport Terminal)

Metro Yellow Line Length	31.54 km total, 29 stations
Vacant Land	The majority (28%, 163 ha) is in a state where planned TOD is possible
Key Employment Anchors	TCS, Infosys, IIM Indore, RGPV, Devi Ahilya University
Character Zones	IT/ITES Hub Institutional Residential Mixed-Use

Source: IDA Layout Plans, ISRO Bhuvan Imagery Analysis, Field Survey, March 2026

1.2 The Planning Problem

The main question addressed in this thesis is the mismatch in structure between the the scale in which ambitions of the Super Corridor meet the realities of the neighbourhood of its built environment. India's urban planning system creates a regulatory hierarchy with two effective levels: Master Plans address macro-scale zoning (what uses go where, at what FAR), and Development Control Regulations address the plot scale (how individual buildings relate to their plot boundaries). The intermediate neighbourhood scale — the scale at which block structure, street design, social infrastructure, affordable housing, and public realm emerge from the aggregation of individual plot decisions — is entirely absent from this regulatory framework.

This neighbourhood-scale regulatory vacuum has catastrophic consequences for the Super Corridor. Without any requirement to provide through-streets, active frontages, social facilities, or affordable housing within development schemes, IDA-approved layout plans have created a fabric of enormous superblocks — aggregates of 5–20 ha enclosed by boundary walls and served only by boundary roads

— that are spatially and functionally incompatible with pedestrian movement or transit-oriented living. The metro stations exist as infrastructure islands in a sea of car-centric development, accessible only by private vehicle despite being nominally at the Centre of a transit corridor. Moreover the surroundings of the corridor provides a climatic problem to verify. Indore workouts hazardous. Outdoor exercises are dangerous during the summer, when the temperature goes over 45°C frequently for some. walking physiologically hazardous. The international TOD standard of an 800 m pedestrian catchment radius this is computed from temperate-climate research in Western countries. A context where 300 m of exposure is not applicable, applies to Europe and North America. Any walking, unshaded, during April is considered a thermal stress event. Yet neither the

IDA DCRs, the MP TOD Policy, nor any other regulatory instrument applicable to the corridor acknowledges this climatic reality.

1.3 Aim and Objectives

1.3.1 Aim of the Thesis

To create a human centered residential neighbourhood planning process based on the Develop a more vibrant and inviting environment. Establish a more inviting, lively place with concepts of TOD (Transit Oriented Development) in mind in and around Super Corridor, Indore. support walking, social inclusion and growth in cities — in harmony with the institutional, regulatory and climatic context of Indore city in particular.

1.3.2 Objectives

Objective 1: To provide analysis of existing land use patterns, infrastructure conditions, and possibilities and constraints along with a susceptibility assessment. Analyzing growth dynamics from the Super Corridor through multi-temporal analysis using GIS. The three phases consist of analysis, field survey and secondary data review.

Objective 2: To assess the gap between existing infrastructure provision and Economics establish a clear definition of TOD that is uniformly applied to all four sections of the plan. URDPFI norms and ITDP TOD standards in all four aspects of the plan create a uniform definition of TOD. green infrastructure dimensions.

Objective 3: To assess the existing TOD performance in the corridor as per the ITDP Walk, Cycle, Connect, Mix, Densify, Compact, Shift, and Access — Indemnified for use in the Indian context of hot climate. To create a block design planning framework covering objectives 4, 5, 6 and 7. The national merit, zoning hierarchy, social infrastructure requirement, NMT network Design, affordable housing integration and environmental strategies.

Objective 5: To develop an implementation blueprint that involves an institutional approach. A governance model, regulatory instruments, the phasing strategy, and the financial resource mobilization plan.

1.4 Research Methodology

The thesis is written using the mixed methods of research approach in which five parallels were developed. These analytical streams are one by one comprised of the five research objectives.

1.4.1 GIS and Satellite Imagery Analysis

Further, multi-temporal land use change detection was done using ISRO Bhuvan satellite Google Earth imagery for 2000, 2013 and 2019. for 2024–2025. Geographic Information Systems (GIS) software was used to convert the base map data of the roads, buildings and other urban features into digital image representations. Coherent and permanent open spaces throughout the study area The digitisation process followed the land use classification system of the URDPFI Guidelines 2014, enabling direct comparison between existing land use and planned norms.

1.4.2 Infrastructure Gap Analysis

A systematic inventory of social infrastructure — primary schools, anganwadis, health sub-centres, community halls, and public parks — was compiled through field survey and cross-referenced with IDA layout plans and IMC records. The inventory was spatially analysed in QGIS to calculate service catchment coverage and identify areas outside URDPFI-mandated distances from each facility type. Similar analysis was conducted for footpath coverage, cycle track presence, and signalised crossing locations.

1.4.3 ITDP TOD Standard Assessment

The ITDP TOD Standard (Version 2.1, 2013) was applied to the Super Corridor through a structured field audit covering all eight TOD dimensions. Each dimension was scored using the ITDP Standard's scoring rubric, adapted for the hot-climate Indian context by introducing a thermal comfort modifier to the Walk dimension scoring. The field audit was conducted in March 2026 across six survey transects, each covering a 400 m cross-section centred on a metro station.

1.4.4 Spatial Design Iteration

The design framework was developed through an iterative process of street network design, land use allocation, public space planning, and typological specification. Each iteration was evaluated against the URDPFI norms, IDA DCRs, and MP TOD Policy provisions. Design precedents from Hammarby Sjöstad, Bogotá Transmilenio, and Ørestad were referenced for specific design elements rather than wholesale transplantation.

1.4.5 Stakeholder and Policy Analysis

Semi-structured interviews were conducted with officers from IDA, MPMRCCL, and Indore Smart City Development Limited to understand institutional constraints and implementation priorities. Policy analysis examined the alignment between the proposed framework and existing statutory instruments — MP-2035, IDA DCRs, MP TOD Policy, PMAY-Urban, and Metro Rail Policy 2017 — to identify the specific regulatory amendments required for implementation.

1.5 Scope and Limitations

This thesis focuses exclusively on the 580 ha study area within the Super Corridor between the Ring Road and Krishnaganj. Transit demand modelling, detailed structural engineering, comprehensive environmental impact assessment, and detailed cost estimation of individual design elements are outside the scope of the thesis. Demographic projections are based on Census 2011 extrapolations, as 2021 Census data remained delayed at the time of fieldwork. The design proposals are presented at the neighbourhood planning level (1:2000 to 1:5000 scale) rather than at detailed architectural or engineering design level.

CHAPTER 2: LITERATURE REVIEW AND POLICY FRAMEWORK

2.0 Introduction

This chapter works through the principal theoretical frameworks, empirical studies, and policy instruments that inform the planning challenge of the Super Corridor. The review is organised across four domains: national planning literature on Indian TOD and peri-urban development, international TOD theory, international case studies of comparable corridors, and the national and state policy framework applicable to the corridor. A critical gap analysis at the chapter's conclusion identifies the five research gaps that this thesis addresses.

2.1 National Planning Literature

The academic literature on transit-oriented development in India has grown substantially since the mid-2000s, driven by the rapid expansion of metro rail networks across the country's major cities. This literature reveals a consistent pattern of transit investment without transit-oriented development — a paradox that the Super Corridor exemplifies with particular clarity.

2.1.1 Peri-Urban Planning Governance

Ballaney and Patel (2009) conducted a important study of peri-urban development governance in Indian cities, focusing on the experience of Ahmedabad's fringe areas under the Town Planning Scheme mechanism. Their central finding — that the absence of neighbourhood-scale planning frameworks in rapidly expanding urban peripheries consistently results in costly and often infeasible retrofitting of residential areas — has direct relevance to the Super Corridor. Ballaney and Patel documented how large-parcel subdivisions in Ahmedabad's fringe areas created impermeable superblocks that subsequently required expensive road widening, utility extension, and social facility provision after settlement consolidation — precisely the trajectory that the Super Corridor is currently following. Their recommendation for preventive neighbourhood-scale planning, designed before settlement consolidation rather than imposed upon it, provides the conceptual basis for this thesis's intervention timing. (Ballaney and Patel, 2009)

2.1.2 Delhi Metro TOD Experience

Agarwal (2015) provided the most thorough assessment of TOD outcomes around Delhi Metro stations, examining the built environment changes in a 1 km radius around 12 stations across three metro lines. Two findings are particularly relevant to the Super Corridor. First, Agarwal documented a consistent failure to create a pedestrian environment that makes walking to stations feasible: despite substantial capital investment in metro infrastructure, pedestrian journeys to most stations remained marked by fragmented footpaths, hostile road crossings, and an absence of cycling infrastructure, making the theoretical 800 m TOD catchment effectively unreachable for the majority of residents within it. Secondly, Agarwal noticed that there were some patterns of transit. proximity gentrification — the increase in property values around metro stations disproportionately benefits those who are able to purchase, or middle-high income families Expel poor people to farther from transit but still move households to transit adjacent properties. Housing current configuration...at distant places = dynamic of the current housing configuration at various distances already prefigures. (Agarwal, 2015)

2.1.3 Ahmedabad BRTS and TOD Zoning

As observed by Tiwari and Jain (2016), the evaluation of Ahmedabad Bus Rapid Transit System (BRTS) corridor, and its surrounding area shows that infrastructure alone is not enough to yield TOD results without accompanying reforms to zoning laws. The findings show that there should be FAR incentives, which can be achieved by increasing FAR for developments near transit. However, according to the researchers, the increase in FAR alone does not translate into a successful TOD, since there should be additional regulations such as standards of development of the street sides, block edges, and public spaces, and without these standards, only tall and monofunctional residential buildings will be constructed within superblock structures.

2.1.4 Super Corridor: Existing Evidence

Pedestrian infrastructure audits have been done on the Super Corridor itself, recording facts that were duplicated by the main field survey of this thesis in March 2026; only 23% of the roads in the corridor had continuous footpaths, there was no cycle infrastructure at all in the entire study area, and median barriers restricted pedestrians from safely crossing at many key points. According to this research, such deficiencies were caused by the lack of road infrastructure design standards in the layouts designed by the IDA, which is further supported by the policy analysis in this thesis. According to HUDCO (2020), deficiencies in social infrastructure are characteristic of peri-urban

residential projects in India, which indicated that the shortfalls are usually greater than 60% compared to URDPFI norms once the peri-urban areas become fully occupied. (HUDCO, 2020)

2.2 International TOD Theory

2.2.1 Calthorpe and the TOD Hierarchy

Peter Calthorpe's 'The Next American Metropolis' (1993) established the foundational spatial model of TOD as a hierarchical system of transit nodes, each serving a 400–800 m pedestrian catchment at a mix of densities and uses. Calthorpe's model introduced the principle of transit hierarchy — distinguishing between Regional TOD nodes (around rapid transit stations, with higher densities and more intensive commercial uses) and Neighbourhood TOD nodes (around local transit stops, with medium densities and locally-serving retail and community uses) — a distinction that is directly reflected in this thesis's Primary, Secondary, and Transition zone hierarchy. Calthorpe's insistence on the pedestrian environment as the fundamental building block of the TOD model — specifically, the 400 m radius as the maximum comfortable walking distance for the average pedestrian — provides the metric for the block perimeter standard proposed in Chapter 6. (Calthorpe, 1993)

2.2.2 Cervero and the 3Ds

Cervero and Kockelman's (1997) '3Ds' framework — Density, Diversity, and Design — remains the most influential empirical framework for understanding the relationship between the built environment and travel behaviour. Their regression analysis of San Francisco Bay Area travel data demonstrated that each of the three Ds independently and significantly reduces car dependence: higher residential and employment density increases transit ridership; greater mix of land uses (measured by entropy indices) reduces average travel distances; and more fine-grained block structure (measured by intersection density) increases pedestrian and cycling mode shares. The 3Ds framework informs the three-pronged structure of this thesis's analytical framework: density (TOD FAR hierarchy), diversity (mixed-use ground floor mandates), and design (block perimeter and active frontage standards). (Cervero and Kockelman, 1997)

2.2.3 Gehl and Human-Scale Design

Jan Gehl's "Cities for People" (2010) included an essential element absent from much TOD literature – quality of the public realm at human scale. Jan Gehl's empirical studies, carried out over several decades across many cities including Copenhagen, Melbourne New York and others, showed that human movement through the environment is highly dependent on environmental characteristics operating beyond block structure – footpath,width, building frontage activity, provision of seating and shade, crossing experience and most importantly for the Super Corridor, thermal comfort. Human activity in outdoors paces was found to decrease sharply as soon as the level of thermal stress exceeds the threshold of comfortable temperature regime, rendering pedestrian corridors effectively unusable despite their physical presence. The key implication here for the present thesis lies in its innovative approach to the application of walkability criteria,including thermal adaptation, in an 800m catchment modified on account of shade infrastructure provision. (Gehl, 2010)

2.2.4 ITDP TOD Standard

ITDP TOD Standard (2013) The most complete and rigorously operable model for evaluating and designing TODs exists within the ITDP TOD Standard (2013). The standard is built along eight Dimensions: Walk, Cycle, Connect, Mix, Densify, Compact, Shift and Access. The use of these criteria facilitates a quantifiable evaluation of the effectiveness of TODs that may be uniformly applied in corridors, cities, and internationally. Each criterion is evaluated based on a weighted score system with a maximum score value of 100. For the existing conditions evaluation in Chapter 4, and the definition of performance criteria for the proposed framework in Chapter 6, the author will use the ITDP standard as his primary analytical tool. (ITDP, 2013)

2.2.5 Jacobs and Urban Vitality

The core principles of Jane Jacobs from "The Death and Life of Great American Cities". Jacobs identified four conditions necessary for street life and urban vitality: mixed primary uses that attract people at different times of day; small blocks that provide multiple route options; buildings of different ages that accommodate businesses at different rent levels; and sufficient concentration of people. The Super Corridor's existing fabric

violates all four conditions: land uses are overwhelmingly single-function residential; blocks are enormous and impermeable; the built stock is uniformly recent and commands premium prices; and densities, while increasing, remain far below what the available FAR permits. Jacobs' framework serves as the conceptual basis for the mixed-use ground floor mandate and active frontage requirements in the proposed framework. (Jacobs, 1961)

2.3 International Case Studies

2.3.1 Hammarby Sjöstad, Stockholm

Hammarby Sjöstad is a sustainable urban district in Stockholm developed on former industrial land during the 1990s and 2000s, providing housing for approximately 26,000 residents across a 200 ha site at medium-high densities. The district is perhaps the world's most cited example of integrated ecological and transit-oriented neighbourhood planning, combining a closed-loop ecological cycle for water, waste, and energy with a mobility system that provides tram access within 300 m of all residents. For this thesis, Hammarby's most directly applicable lesson is the use of a degraded waterway — the Hammarby canal — as a generative spine for neighbourhood structure, providing ecological function, recreational amenity, and social identity simultaneously. The three *nalas* in the Limbodi revenue village are analogous elements: currently neglected and encroached upon, they present an opportunity for a similar transformation into a linear ecological-recreational infrastructure that serves as the structural generator of the N2 neighbourhood.

(1961) remain equally relevant to the Super Corridor case. The Hammarby example proves the feasibility of implementing the 300 m criterion of public transport accessibility in a setting where medium-rise buildings constitute the residential typology rather than high-rises. In particular, the combination of perimeter blocks of 4 to 6 storeys, courtyard structures, and tall buildings here ensure an urban density of around 130 dwelling units per hectare, roughly the same figure as those planned for the secondary TOD area in the Super Corridor.

2.3.2 Bogotá Transmilenio

Bogotá's Transmilenio BRT system and the associated urban transformation of Bogotá's public space represent the most directly applicable international precedent

for the equity dimension of the Super Corridor challenge. Bogotá demonstrated that high-quality public transit can be made to work in a developing-country context marked by high informality, extreme income inequality, and significant political resistance from private vehicle users. The city's aggressive investment in NMT infrastructure — including protected cycle tracks (now over 550 km), pedestrian plazas, and urban parks in low-income areas — produced a measurable modal shift away from private vehicles within less than a decade of implementation.

Bogotá's hot-climate context (mean temperature 14°C, significantly cooler than Indore's 45°C summer peak) and high-altitude UV intensity provided design lessons in shaded street design and NMT-first street cross-sections that are applicable to the Super Corridor's thermal challenge. The city's Ciclovía programme — weekly closures of major roads to private vehicles — provides a model for the Super Corridor's proposed Station Forecourt pedestrianisation strategy around metro stations.

2.3.3 Ørestad, Copenhagen

Ørestad is a planned TOD district in Copenhagen, developed from the 1990s along a new metro line connecting the city centre to the airport. The district exemplifies the density gradient principle — with the highest densities and most intensive mixed uses immediately adjacent to metro stations, transitioning to medium-density residential development at greater distances — that is central to this thesis's TOD Zoning Hierarchy. Ørestad's regulatory framework mandated active frontages on all primary streets and required a minimum proportion of non-residential uses at ground floor level throughout the district, provisions that directly inform the active frontage and mixed-use mandates proposed in Chapter 6.

However, Ørestad also provides cautionary lessons. The dominance of large-format commercial development (including large office campuses, a shopping mall, and an arena) over small-scale mixed-use retail has produced an environment that is dense but not particularly vibrant or pedestrian-friendly outside peak hours. The district's urban commons park — the 60 ha Amager Common — functions as a successful public space at the district scale but does not substitute for block-level green space within the residential fabric. Partial success stories validate the claim that both the district park and block greens are essential prerequisites of the neighbourhood structure. (Wikipedia, 2024)

2.4 National Policy Framework

2.4.1 National Urban Transport Policy, 2006

The National Urban Transport Policy (NUTP) in 2006 introduced the basic principle of land-use/transport integration into the Indian urban development process where NMT infrastructure such as footpaths, cycle tracks, and pedestrian crossings are mandatory components of the urban transport system.. The NUTP's provisions remain the strongest statement of NMT priority in Indian planning law, yet their implementation has been systematically neglected in practice. The Super Corridor's 77% footpath deficiency and complete absence of cycle infrastructure represent a direct violation of NUTP principles that has persisted for over 15 years without regulatory consequence. (Government of India, 2006)

2.4.2 URDPFI Guidelines, 2014

The Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines 2014 provide the statutory framework for social infrastructure planning, specifying catchment distance norms for all categories of community facilities: primary schools within 500 m, anganwadis within 300 m, neighbourhood parks within 300 m, health sub-centres within 1 km, and community halls within 800 m. The guidelines also specify open space standards of 10–12 sq m per person and a minimum of 10% of gross development area as public open space. These norms serve as the primary benchmark for the infrastructure gap analysis and the social infrastructure mandate in the proposed framework. (Government of India, 2014)

2.4.3 Metro Rail Policy, 2017

The Metro Rail Policy 2017 mandates the preparation of a TOD plan within a 1 km radius of every metro station in India, to be prepared by the relevant development authority in coordination with the metro rail corporation. In the Super Corridor context, this obligation falls on IDA in coordination with MPMRCCL. At the time of this thesis's completion, no TOD plan had been prepared for any of the six Super Corridor metro stations — a regulatory non-compliance that this thesis's framework is designed to address. (Government of India, 2017)

2.4.4 Madhya Pradesh TOD Policy

The Madhya Pradesh TOD Policy provides enhanced FAR provisions within 500 m of metro or BRTS stations: FAR 3.5 for residential development and FAR 4.5 for mixed-use development. These provisions represent a potential multiplier of 2.25–3× the baseline FAR applicable elsewhere, creating a significant density bonus that, if effectively used through the cross-subsidy mechanism proposed in Chapter 9, can fund affordable housing delivery, NMT infrastructure, and public space improvements. (Government of MP, 2021)

2.4.5 PMAY-Urban, 2015

The Pradhan Mantri Awas Yojana – Urban (PMAY-U) 2015 mandates a minimum of 15% EWS/LIG housing in all new residential developments receiving government approval, with subsidy linkage for eligible purchasers. The corridor's current stock of less than 5% EWS/LIG units represents a three-fold violation of this mandate, reflecting the absence of enforcement mechanisms in IDA's development consent process.. The cross-subsidy approach outlined in Chapter 9 offers a viable self-supporting framework to ensure the project complies with PMAY regulations. (Government of India, 2015)

2.5 Identified Research Gaps

Review of the current literature indicates the following five key research gaps, which have been addressed by the current thesis:

G1 – Neighborhood-Level TOD: There is no shortage of TOD literature at the corridor level, but very little has been done to create evidence-based frameworks at the neighborhood level.

Gap G2 — Thermally Adapted Walkability: International walkability research is based on temperate-climate data. The 800 m TOD catchment standard has no empirical validity for cities with summer temperatures exceeding 45°C. An Indian hot-climate walkability standard, integrating shade infrastructure as a variable, is entirely absent from the literature.

Gap G3 — Mixed-Income TOD Integration: Spatial mechanisms for vertically integrating EWS/LIG housing within mixed-income TOD blocks — sharing towers, lifts, and amenities with MIG/HIG residents — have limited evidence in

the Indian context, where affordable housing is typically segregated in peripheral estates.

Gap G4 — Social Infrastructure as Structural Generator: Planning practice treats social facilities as residual uses located on leftover sites. The concept of organising neighbourhood form around social infrastructure anchors — school-as-generator, park-as-generator — has not been systematically developed for the Indian TOD context.

Gap G5 — Implementation Frameworks for IDA-Type Contexts: Corridor planning proposals in Indian academic literature typically remain at the conceptual level without engaging the specific institutional and regulatory instruments through which implementation must occur. Phased, institutionally-grounded implementation pathways for IDA-type development authorities are absent from the literature.

CHAPTER 3: STUDY AREA PROFILE AND EXISTING CONDITIONS

3.0 Introduction

This chapter presents a systematic profile of the Super Corridor study area, documenting existing land use patterns, physical infrastructure conditions, demographic characteristics, transit network configuration, and environmental context. The analysis draws on GIS-based land use mapping, ISRO Bhuvan multi-temporal satellite imagery (2000, 2013, 2019, 2024–25), IDA layout plans, IMC records, MPMRCCL station data, and primary field survey data collected in March 2026.

3.1 Land Use Analysis

Composition of land use of the study area under discussion is in keeping with its character as a transition zone – between the well-formed urban setting around the Ring Road and the emerging institutional/ residential edge around the airport. Land use analysis in the study area has been done using URDPFI Guidelines 2014. The land use data used in this analysis was obtained from digitising of the ISRO Bhuvan imagery for 2025 year supported by field survey data. Land use pattern of the study area

Table No. 2: Existing Land Use Composition, Super Corridor (2025)

Land Use Category	Area (ha)	Share (%)	Primary Character	Planning Status
Vacant / Agricultural	163	28%	Mix of fallow agricultural, disturbed scrub land	Primary TOD opportunity — at risk of unplanned development
Residential (existing)	203	35%	Gated apartments, plotted colonies, village settlements	Fragmented superblocks; NMT infrastructure absent
Institutional / IT Parks	128	22%	TCS, Infosys, IIM, RGPV, universities	Major employment anchors; zero last-mile connectivity
Roads & Right-of-Way	58	10%	Wide carriageways, metro viaduct, service roads	Pedestrian infrastructure severely deficient
Open / Green Space	29	5%	Scattered parks, nala channels, drainage land	Below URDPFI norm; poorly accessible

Total	580	100%		
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Source: GIS Analysis, ISRO Bhuvan Imagery 2025; IDA Layout Plans; Field Survey March 2026

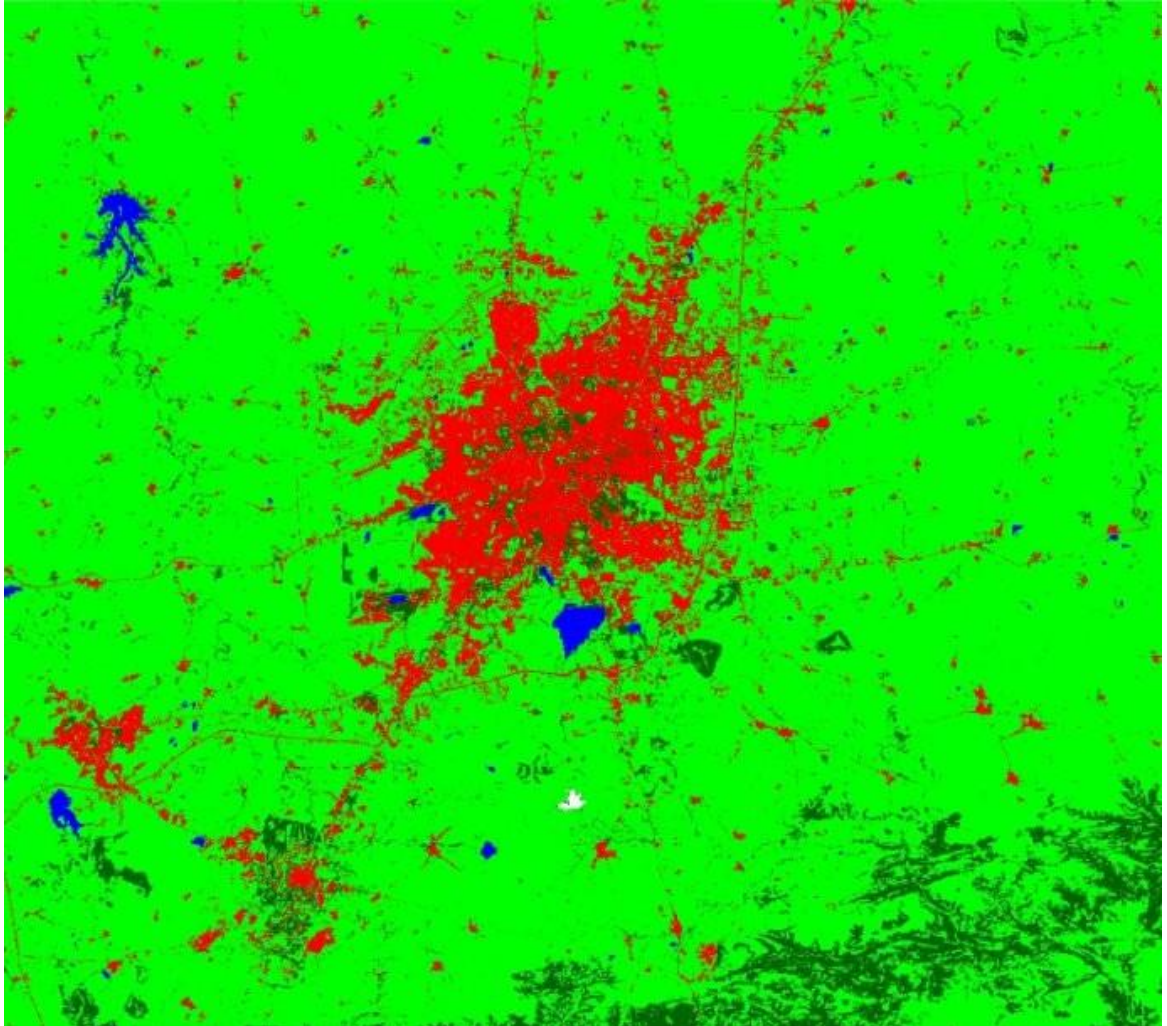


Fig. No. 3: Existing Land Use Map, Super Corridor, Indore (2025)

figure 3 below. It is evident that there are many areas of green (vacant/agricultural land) in the periphery whereas in the middle sections of the corridor, there are many red dots (residential land uses). Grey/institutional blocks of TCS and Infosys campuses are visible on the western end of the corridor. Fragmentation of development as seen in residential areas, whereby there are large patches of vacant land between pockets of residential developments, is indicative of the speculative nature of corridor developments whereby individual projects are approved without any consideration of other nearby developments. 28% vacant land holdings (163 ha) constitute the key planning challenge addressed in

be absorbed into the same superblock pattern characterising the existing 35% residential stock — creating an irreversible built form that cannot be made walkable without demolition.

3.2 Multi-Temporal Land Use Change

The analysis of the satellite imagery taken in 2000, 2013, and 2019 indicates the speed and trend of growth in the urbanization process around the Super Corridor. The extent of built-up land was at a minimum of 14.64% in 2000 when the study region was predominantly agricultural, with only the Vijay Nagar Extension area developed. However, in 2013, the level of built-up land rose to 32.28% because of development of IT campus and initial phases of housing schemes. By 2019, the proportion of built-up areas grew to 49.45%, due to metro viaduct construction and subsequent road development projects.

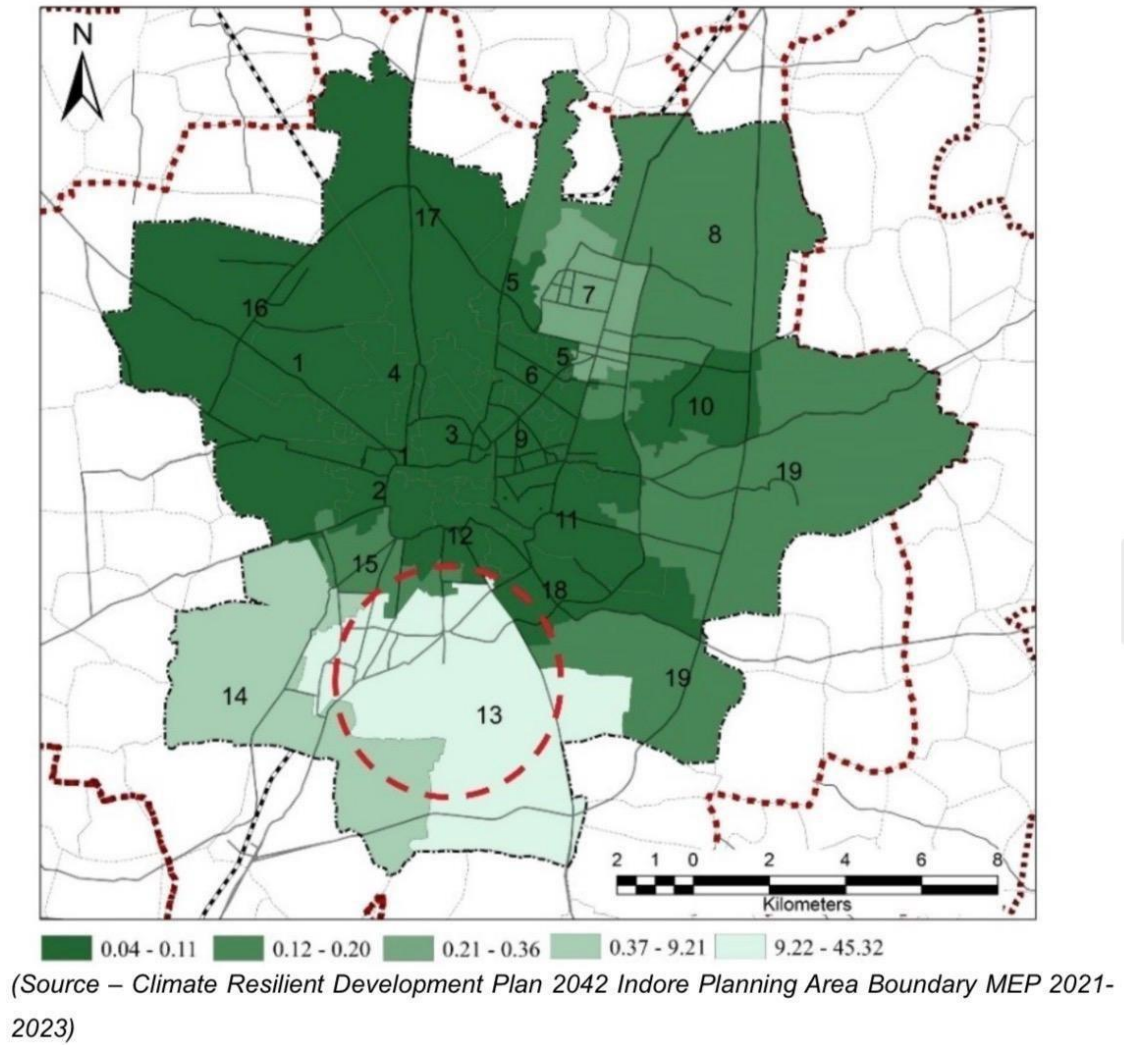


Fig. No. 6: built-up cover analysis, Indore

Figure 6 clearly shows how vegetation cover declined considerably between 2000 and 2019 in the planning region of Indore city. While vegetation (green areas) were predominant in 2000 (at bottom), the built-up land (red) extended dramatically in 2019 (at top), indicating a considerable increase in the built-up area in the Super Corridor zone

3.3 Transit Network

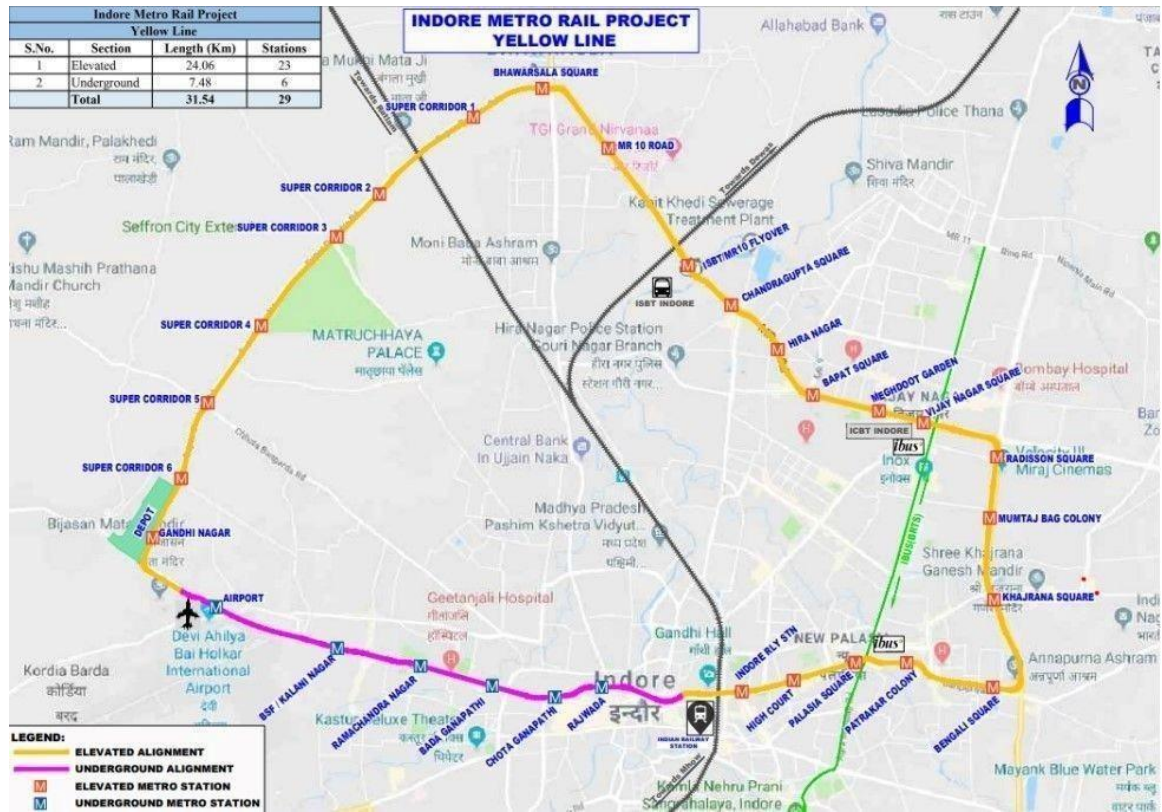


Fig. No. 4: Indore Metro Yellow Line Alignment and Station Locations

Figure 4 shows the alignment of the Metro Yellow Line through Indore, with the six corridor stations on the Super Corridor clearly marked. The map illustrates the linear character of the metro alignment along the corridor axis and its relationship to the city's major employment and institutional nodes.

The Metro Yellow Line (31.54 km, 29 stations) provides high-frequency transit connectivity along the Super Corridor, with six stations located within or immediately adjacent to the 580 ha study area. The stations — serving a combined daily boarder count currently in the tens of thousands — represent a transformative public investment in transit infrastructure. However, the complete absence of last-mile connectivity infrastructure means that this investment is currently producing a small fraction of the ridership that the catchment population could theoretically provide. At peak service intervals of 7–10 minutes, the Metro Yellow Line is capable of moving far more passengers than it currently carries — a waste of public investment that the proposed NMT infrastructure would directly remedy. (MPMRCCL, 2022)

3.4 TOD Influence Zones

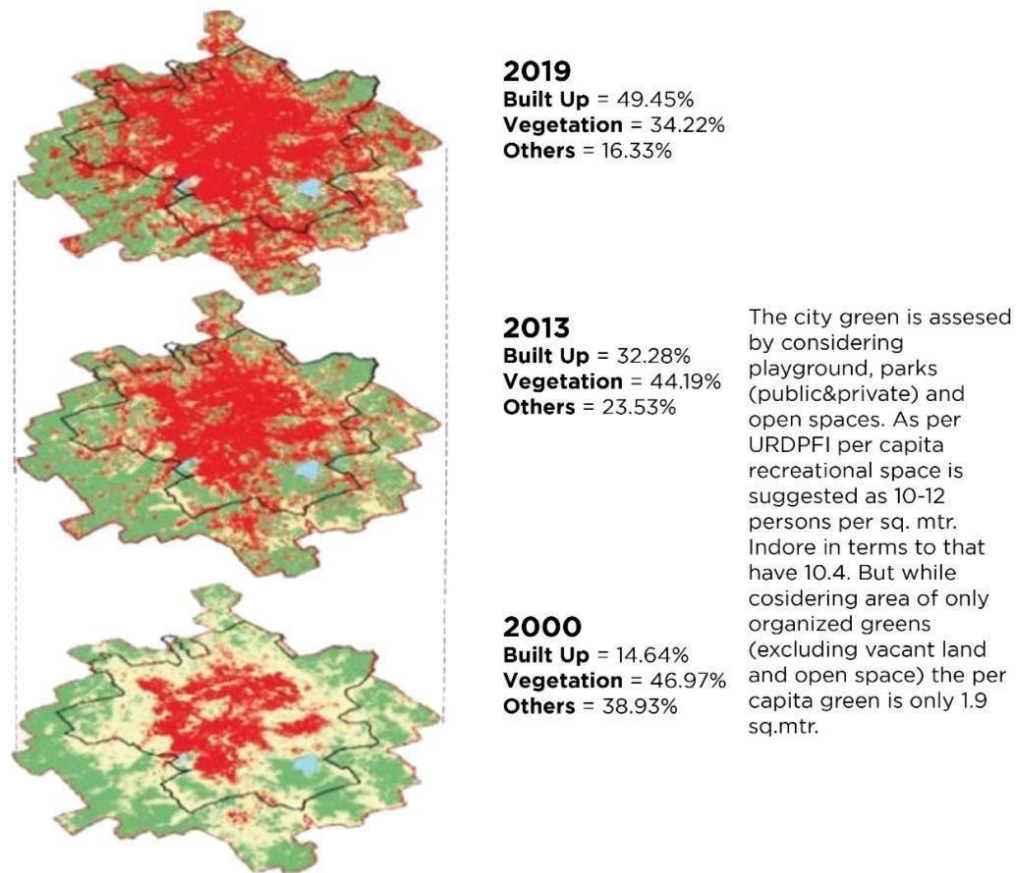


Fig. No. 5: TOD Influence Zone Map – Ward-Level FSI Distribution and Station Catchments

Figure 5 presents the spatial distribution of TOD influence zones and ward-level FSI data across the Indore Planning Area, superimposed with the metro station catchment circles. The map illustrates the concentration of the highest FSI provisions in the city's historic core (shown in the darkest shading) and the relatively lower current FSI use in the Super Corridor zone — demonstrating the significant underutilisation of development potential in the corridor despite the TOD Policy's enhanced FAR provisions.

The TOD influence zone analysis classifies the 580 ha study area into three concentric zones centred on each metro station. Approximately 70% of the study area (406 ha) falls within the 800 m TOD influence zone, making the corridor one of the highest-coverage TOD zones in Madhya Pradesh. Yet this theoretical coverage generates no actual TOD outcomes given the absence of walkable last-mile connections to the metro stations.

3.5 Physical Infrastructure Assessment

The physical infrastructure survey conducted in March 2026 documented conditions across six transects, each covering a 400 m cross-section centred on a metro station or BRTS stop. The survey found the following infrastructure conditions across the study area:

Road Infrastructure: The Super Corridor expressway provides a wide carriageway (typically 30–45 m between kerbs) with median barriers dividing opposing traffic streams. The median barriers — in several locations constructed with barbed wire rather than designed pedestrian barriers — physically prevent at-grade crossing and make reaching a transit stop on the opposite carriageway hazardous. Secondary roads within residential layout areas typically have carriageways of 9–18 m width, with no footpath provisions on any surveyed road within the study area.

Metro Infrastructure: The construction of viaduct and stations is complete. The station entrances open directly onto the carriageway of the expressway with no pedestrian plaza, shade or waiting area provided. The underneath portion of the viaduct, which is naturally shaded and provides a covered passage for pedestrians, lacks pedestrian infrastructure, with just drainage infrastructure under the viaduct and rough surface.

Utilities: Water supply is available through pipes to all houses in northern areas of the study area (Vijay Nagar Extension), partially in Limbodi and minimally in Krishnaganj. Similarly, sewerage network coverage is also similar, with Limbodi and Krishnaganj using mainly septic tanks as a form of sewerage system. Stormwater drainage mainly uses natural nala drainage system, which are encroached upon in many places due to development

3.6 Environmental Context

The Super Corridor exists within a semi-arid climate region characterized by extreme seasonal temperature differences. The summer months, March to June, experience maximum temperatures well above 42–45°C, sometimes touching 47–48°C during the month of May. The monsoon months (July to September) give the Super Corridor a break from high temperatures. Winter months, November to February, see cool temperatures, with minimum temperatures ranging between 8–12°C.

rainfall of approximately 850 mm per annum, concentrated in three months. There is a major significance of such a climate in terms of designing walkability and public space elements. A typical TOD catchment radius of 800 m implies a pleasant 10-minute walk at a rate of 80 m per minute. While such a walk is physically achievable under temperate climate conditions, under the prevailing conditions in Indore, walking the distance for 10 minutes would be a thermal stress event. Shading facilities would be essential due to the nature of the local climatic conditions. (Gehl, 2010)

Blue Green System of Indore

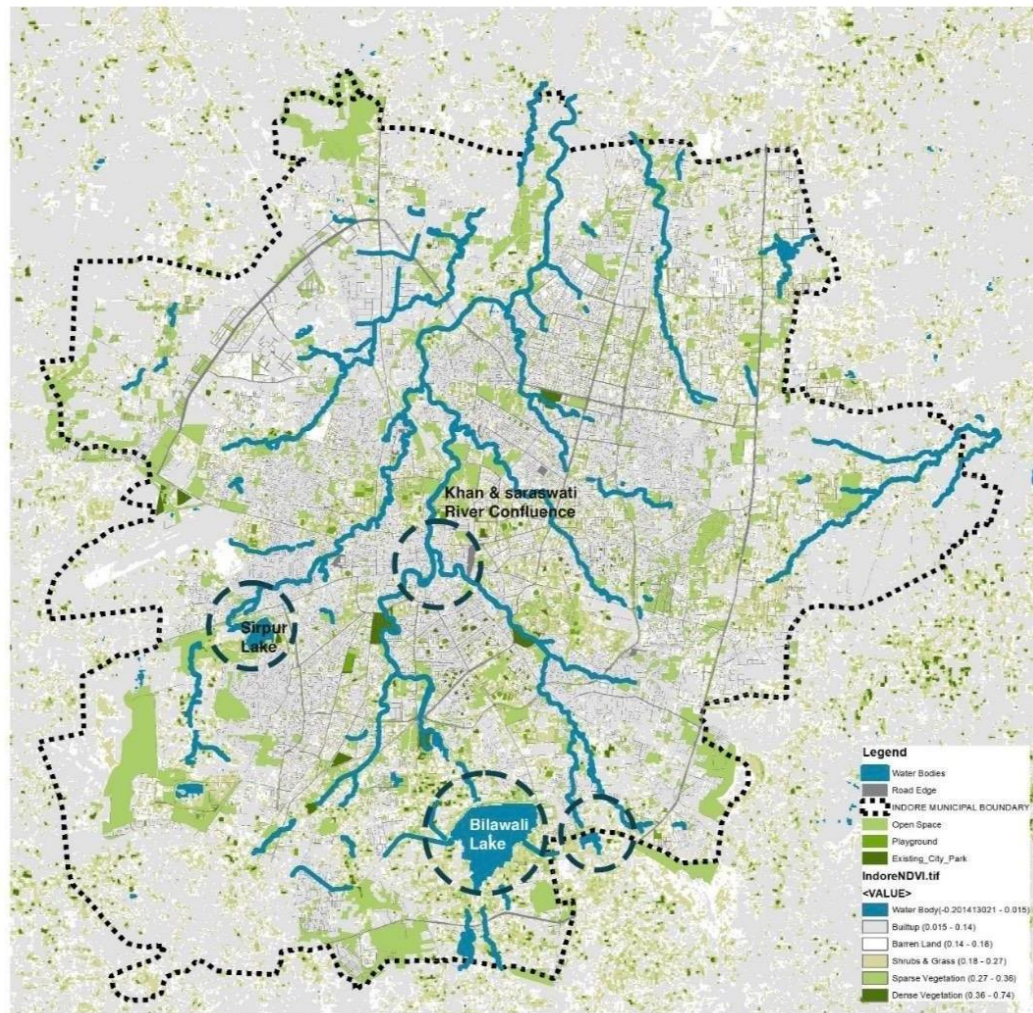


Fig. No. 9: Blue-Green Infrastructure System, Indore – Nala Network and Green Spaces

Figure 9 shows the blue-green infrastructure system of the Indore planning area, including the nala drainage network (shown in blue) and the distribution of green

spaces (shown in green). The map clearly shows the three nalas that traverse the Limbodi revenue village — the generative structure for the N2 Green Fingers neighbourhood proposal — and their connection to the larger Bilawali and Yashwant Sagar lake systems to the west and south of the city. The ecological connectivity between the corridor's nalas and these larger water bodies provides the rationale for the nala restoration and linear park strategy proposed in Chapter 6.

CHAPTER 4: ANALYSIS AND FINDINGS

4.0 Introduction

The findings here span of the study's analytical work across four dimensions: walkability assessment, TOD performance evaluation using the ITDP Standard, infrastructure gap analysis benchmarked against URDPFI norms, and housing and affordability analysis. Together, these four analytical streams produce the diagnostic evidence base that motivates and shapes the neighbourhood planning framework proposed in Chapter 6. (ITDP, 2013; Government of India, 2014)

4.1 Walkability Assessment

The walkability audit was conducted along six transects across the Super Corridor in March 2026, using a structured scorecard adapted from the Walk Score methodology and the ITDP pedestrian environment assessment guide. Seven indicators were assessed for each transect and averaged to produce the study-area-wide scores presented in Table 3. The audit also included photographic documentation at 50 m intervals along each transect. (ITDP, 2013)

Table No. 3: Walkability Scorecard – Current vs Target, Super Corridor

Indicator	Current Status	Target Standard	Gap Assessment
Footpath Coverage	23%	90%+	CRITICAL — 77% of streets without any pedestrian infrastructure
Cycle Track Coverage	0%	70%+	CRITICAL — No cycle facility exists anywhere in study area
Shaded Streets	<15%	60%+	SEVERE — Thermal stress risk on 85%+ of pedestrian routes
Signalised Crossings	2 nos.	Min. 8	SEVERE — 6 crossings deficit across 17 km corridor
Average Block Perimeter	1.4 km	≤400 m	CRITICAL — 3.5× the walkable threshold
Street Lighting	Partial (40%)	Complete (100%)	SIGNIFICANT — Safety risk at night across most streets

Pedestrian Amenities	Absent	Benches + Shade	SEVERE — Zero amenities in any surveyed location
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Source: Primary Field Survey, Super Corridor, March 2026; ITDP TOD Standard (2013)

The walkability findings are corroborated by the photographic survey evidence presented in Figure 7. Six sites demonstrate a clear trend of missing or aggressive pedestrian facilities in the study region. On the Super Corridor Road close to TigariaBadshah (22.773°N), the median divider consists of razor wire. This is an explicit message that walking on the street is hazardous. On the Airport Road entrance (22.780°N), there are six lanes of divided roads without any NMT facilities when it is the main pathway leading to the airport metro station. Under the metro overpass(22.773°N), the shady and covered path is filled with drainage works. The surface is uneven for pedestrians to walk.

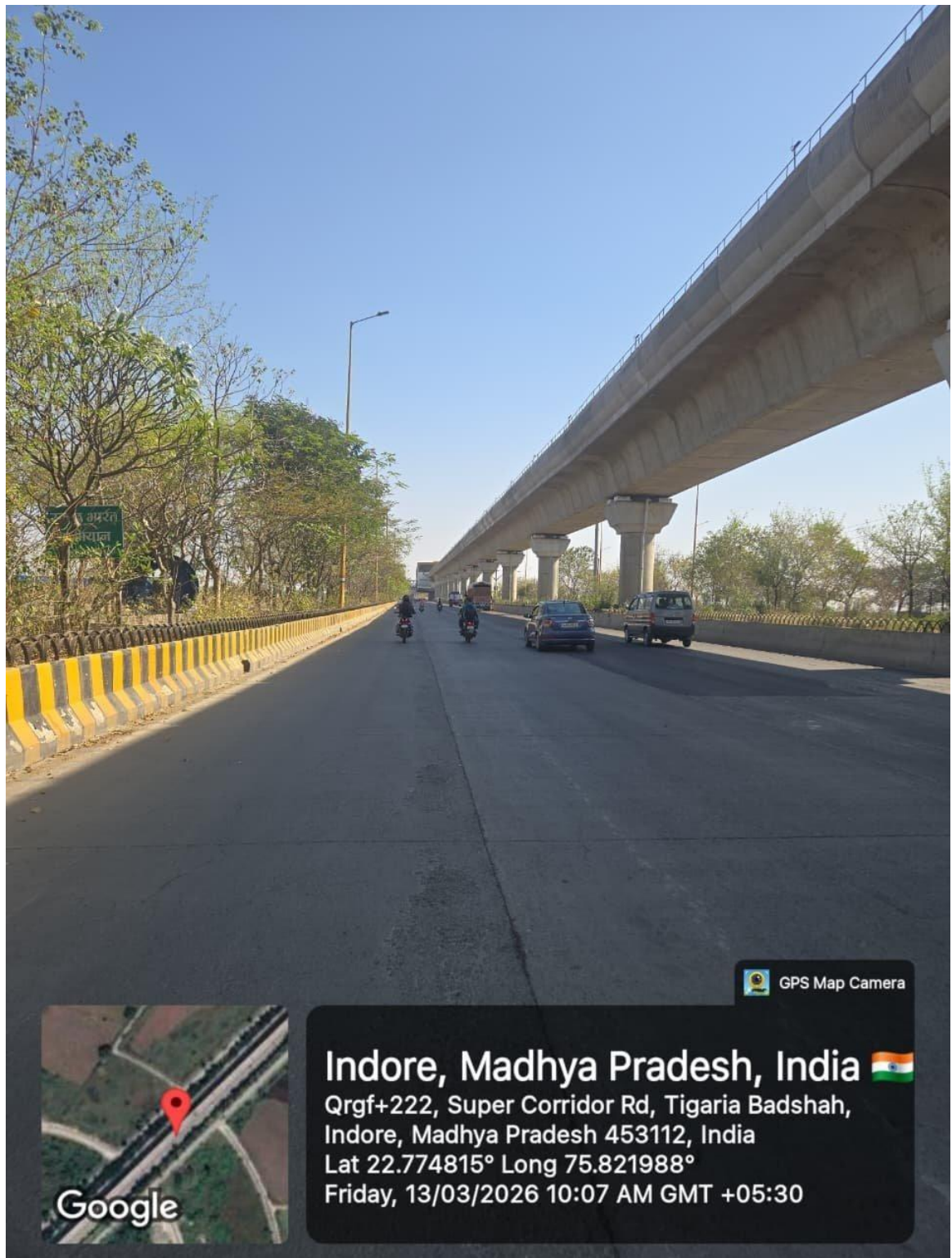


Fig. No. 7: Field Survey Photo 1: Median Barrier – Razor Wire Divider, No Crossing Provision

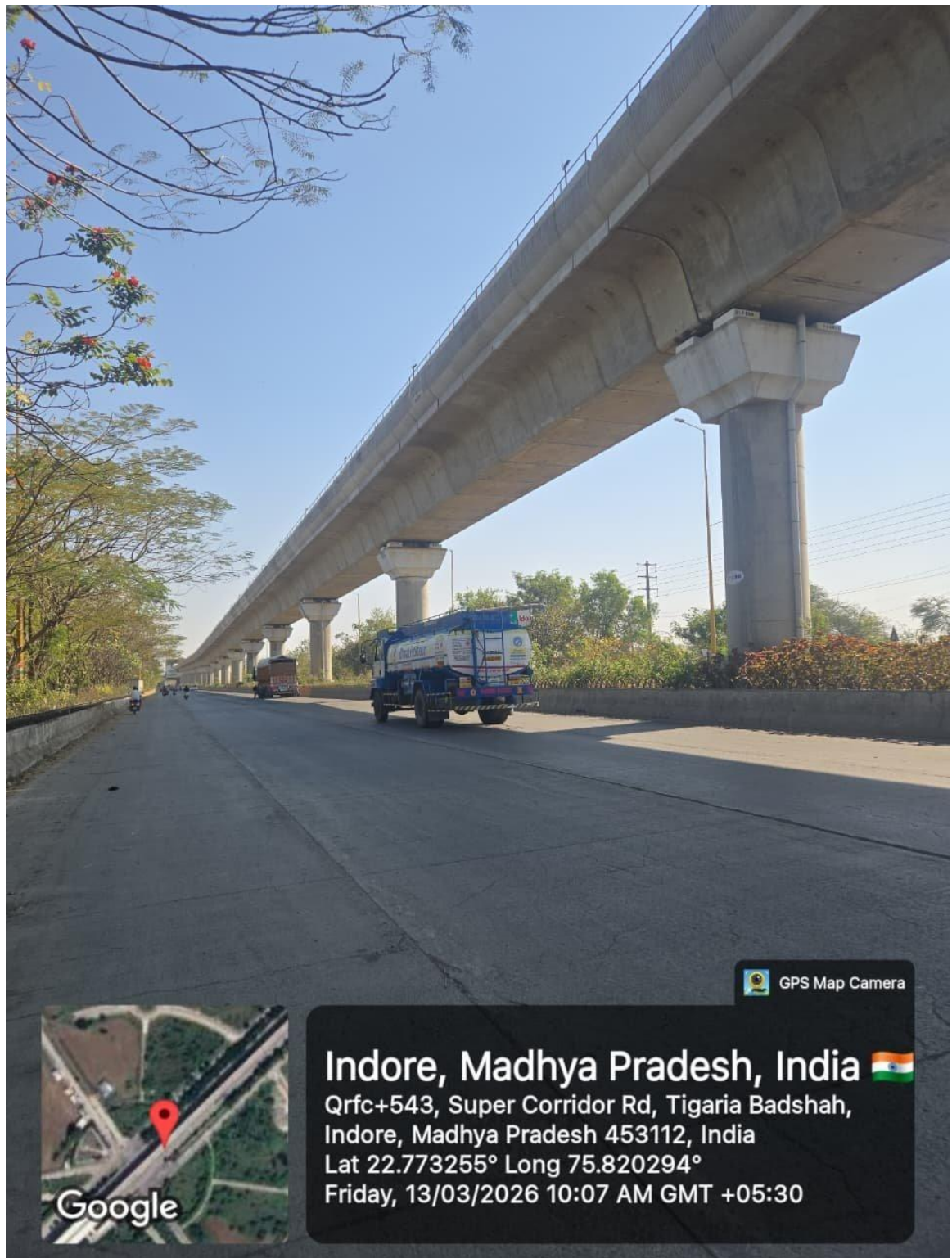


Fig. No. 7: Field Survey Photo 2: Street Edge – Absent Footpath Despite Tree Cover

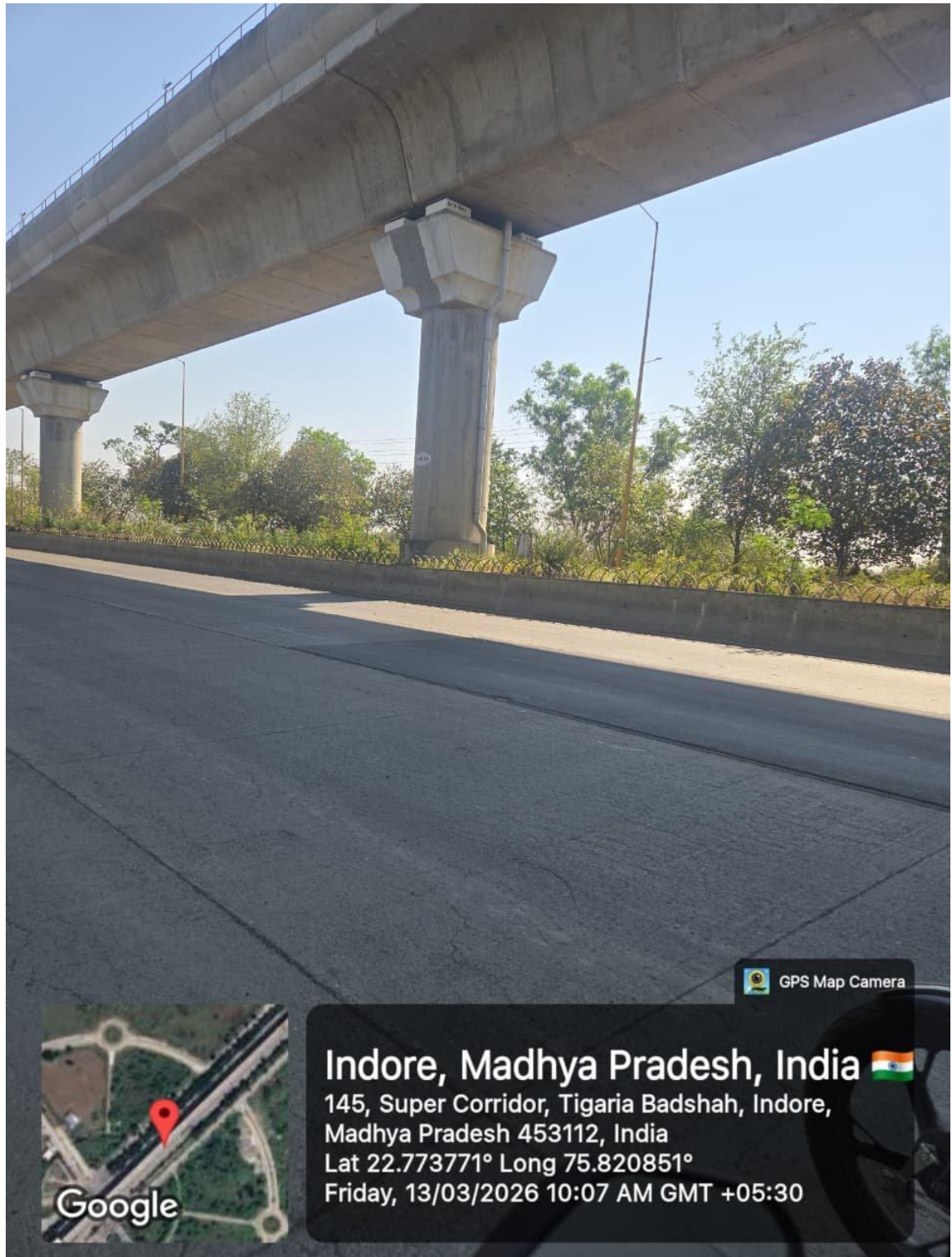


Fig. No. 7: Field Survey Photo 3: Airport Road – Wide Carriageway, Zero NMT Infrastructure

The thermal walkability problem is illustrated by the shade analysis: less than 15% of primary pedestrian routes within the study area have tree canopy providing meaningful shade (defined as >50% shade coverage during peak summer hours of 11:00–16:00). Given that the standard of 400 m walkable distance assumes a

comfortable 5-minute walk, the absence of shade in 85% of routes means that the functional pedestrian catchment of each metro station in summer is effectively limited to 100–150 m — a fraction of the theoretical 800 m catchment radius. (Gehl, 2010)

4.2 ITDP TOD Standard Assessment

According to the ITDP TOD Standard rating, the corridor receives a grade based On the evaluation criteria covering eight dimensions of transit-oriented development. Table 4 summarizes the score attained along with a discussion of the scoring process based on the scoring guidelines. The rating process for the corridor was carried out Through a standardized audit survey followed by GIS analysis of land use patterns and existing transit access. (ITDP, 2013)

Table No. 4: ITDP TOD Standard – 8 Dimensions: Current Status

Dimension	Score	Current Condition	Key Evidence
Walk	23/100	Footpath coverage 23% vs 90% target	Missing footpath on 77% of streets; absent shade
Cycle	0/100	Zero cycle infrastructure	No protected or painted cycle facility anywhere
Connect	15/100	Block perimeter 1.4 km vs 400m	Impermeable superblocks prevent direct routing
Mix	20/100	Single-use residential; no ground-floor mix	100% of ground floors are blank residential walls
Densify	40/100	FAR use <40% of TOD permitted	Significant under-use of TOD FAR bonus
Compact	30/100	Scattered pockets; no contiguous fabric	Development islands disconnected from each other
Shift	10/100	No mode-shift incentives in IDA byelaws	Zero parking restrictions; no transit incentives
Access	35/100	6 metro stations; zero last-mile infrastructure	Stations unreachable by NMT from most residences

Source: ITDP TOD Standard (2013); Field Assessment, March 2026

A summary of the overall profile indicates that this is a 'deficient' TOD corridor – one which possesses transit infrastructure but lacks all other aspects of built environment required for transit-oriented living. Two of the major observations include the cycle score of zero – meaning that there are no bicycle infrastructure elements such as either protected bike lanes or painted bike lanes available on corridor streets

operational metro) and the Connect score of 15 (reflecting the fundamental spatial incoherence of the block structure, which makes direct pedestrian routing not merely inconvenient but physically impossible without traversing private property).

4.3 URDPFI Social Infrastructure Gap Analysis

Table No. 5: URDPFI Social Infrastructure Gap Analysis

Facility Type	URDPFI Norm	Existing Count in Area	Existing Nearest Distance	Gap
Primary School	≤500 m from all residents	0 within study area	>1.5 km (3× norm)	100% deficiency
Anganwadi / Creche	≤300 m from all residents	0 within study area	>1.2 km (4× norm)	100% deficiency
Health Sub-Centre	≤1,000 m from all residents	0 within 1 km	>2.0 km (2× norm)	100% deficiency
Neighbourhood Park	≤300 m from all residents	1 (poorly accessible)	>500 m average	~90% deficiency
Community Hall	≤800 m from all residents	0 within study area	>2.5 km	100% deficiency
Open Space (sqm/person)	10–12 sq m per person	4.8 sq m per person	— (quantity deficit)	52–60% deficiency

Source: URDPFI Guidelines 2014; Field Survey and IDA Records, March 2026

The social infrastructure gap is total: across all six facility categories, the study area's 15,000 current residents have access to zero facilities within URDPFI-mandated distances for five of the six categories, and severely deficient provision for the sixth (neighbourhood parks). This is not a transitional condition that will naturally resolve as the area develops — it is the direct consequence of regulatory frameworks that impose no social infrastructure obligation on private residential developers. (Government of India, 2014; HUDCO, 2020)

4.4 Housing and Affordability Analysis

The housing stock analysis reveals a severe affordability gap. Of the approximately 5,000 residential units estimated across the study area, less than 5% (roughly 250

units) are classified as EWS or LIG category — against the PMAY-Urban mandate of 15%. The dominant typology is MIG+ gated communities and apartment complexes with unit sizes of 1,200–3,000 sq ft and price points of ₹45–120 lakh, placing them firmly outside the reach of the majority of Indore's population. (Government of India, 2015)

Context is important because nearly half of Indore's total housing is provided in an informal way in unauthorized colonies, encroachments, and unauthorized housing developments as formal housing is simply too expensive for the majority of the people. Similarly, the Super Corridor follows the same model as formal residential housing for the IT campus workers earning ₹3-5 lakh annually and the service sector workers earning ₹80,000-1.5 lakh annually is beyond their reach and they have to travel from outside the city in informal housing developments like Vijay Nagar and Sanwer Road, as well as beyond Ring Road. (HUDCO, 2020)

The consequences for the corridor's mobility performance are severe: the absence of affordable housing near IT employment concentrations means that thousands of service-sector workers make long car and two-wheeler commutes daily, generating traffic volumes on the expressway that far exceed what would be generated by a mixed-income neighbourhood where residents live near their workplaces. The cross-subsidy affordable housing model proposed in Chapter 6 directly addresses this self-reinforcing cycle of exclusion and car dependence.

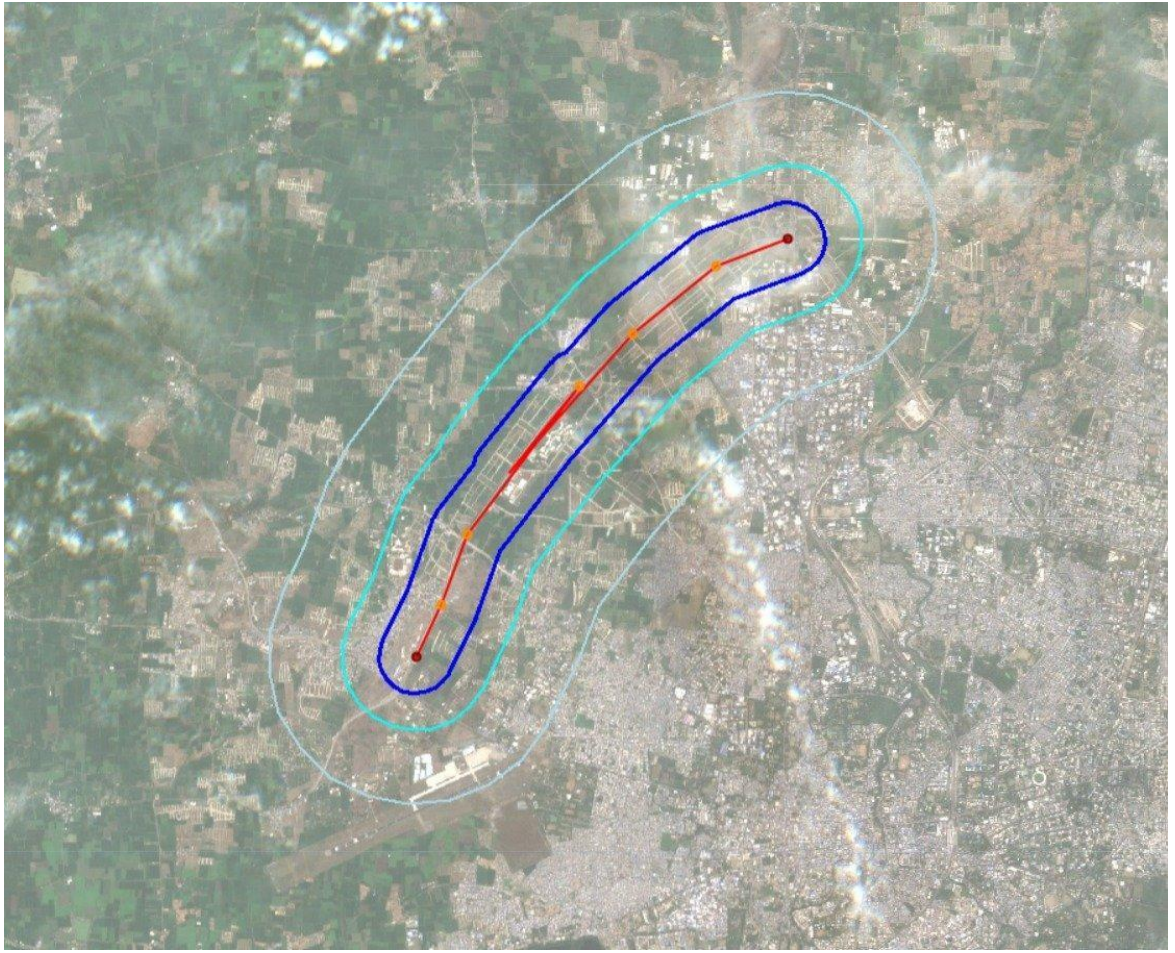


Fig. No. 10: Satellite Image – Super Corridor Alignment with TOD Influence Overlay

Figure 10 shows the satellite image of the Super Corridor with the TOD influence zone overlay, clearly illustrating the corridor's linear character and the concentration of development within the inner TOD zone. The image also shows the significant remaining green areas — particularly in the Krishnaganj zone at the southern terminus — that represent the priority sites for planned TOD development.

CHAPTER 5: IDENTIFICATION OF ISSUES

5.0 Introduction

The analytical work of Chapter 4 surfaces six interconnected planning issues that collectively constitute a systemic failure of the Super Corridor's residential development. Context is important because nearly half of Indore's total housing is provided in an In this chapter, the analysis of each problem has been done in detail by focusing on its regulatory problem, its spatial manifestation, and its impact on the city. Each of the six problems has been discussed here as a whole system

Table No. 6: Six Planning Gaps – Cause, Manifestation, and Impact

Gap	Regulatory Cause	Spatial Manifestation	Urban Impact
Policy Gap	No neighbourhood-scale controls in IDA DCR or MP-2035	Macro-zoning without street/block/social standards	All other gaps flow from this foundational absence
Mobility Gap	No NMT standards in road or layout specifications	77% streets without footpaths; 0% cycle tracks	Metro investment generates zero TOD ridership benefit
Social Gap	No social infra obligation in development consent	Zero URDPFI-compliant facilities in study area	Residential zones without community institutions
Housing Gap	No PMAY cross-subsidy mechanism in DCR	<5% EWS/LIG against 15% mandate	Lower-income workers commute from distant informal areas
Design Gap	No block perimeter or frontage standards	Avg. block perimeter 1.4 km; blank walls dominant	Pedestrian movement physically impossible within blocks
Green Gap	No green space standard in layout regulations	4.8 sq m/person; nalas encroached	Thermal stress; flood risk; public health impacts

Source: Author's Analysis, 2026

5.1 Policy Gap: Absence of Neighbourhood-Scale Controls

The policy gap is the fundamental gap, out of which all other gaps arise. India's urban planning law creates a binary regulatory system: Master Plans address the (Ballaney and Patel, 2009)

The policy gap is the fundamental gap, out of which all other gaps arise. The neighbourhood intermediate scale, wherein walkable block structure, street pattern, public space, social infrastructure, affordable housing and active fronts arise through the aggregation of plot-level decisions, is completely missing from the regulatory regime. In the case of the Super Corridor, this translates into the fact that IDA-approved layout plans can generate 15–20 ha superblocks without having to supply: streets within the superblock itself to divide it into smaller, walkable blocks; active fronts for animating the street edge; social infrastructure within mandated distance of the people living therein; affordable housing within the development project; or open space throughout the fabric of the residential area, rather than concentrated in one park at the perimeter of the project. There is nothing about any of these elements in the 'Residential', 'Institutional' or 'Mixed-Use' zoning designations within MP-2035. The end result is a complete regulatory gap which rational actors – developers, consultants and building professionals – are able to exploit completely lawfully. A developer of a 18 ha residential superblock with one access point only for vehicular traffic, surrounding walls on all sides, and lacking any social infrastructure at all, will have satisfied every requirement laid down by the regulations.

5.2 Mobility Gap: Missing NMT Infrastructure

The mobility gap is one of the most visibly noticeable problems with the Super Corridor, only 23% of streets have footpaths and none of them provide cycle tracks. While there are six metro stations in the area, it is physically not possible to move around via foot or by bicycle due to lack of infrastructure and hazardous obstacles: razor wire median barrier that prohibits at-grade crossing; the boundary wall which forces pedestrians into the road itself; the viaduct underbellies of metro which could have been turned into pedestrian pathways but aren't and have no cover either; the airport roads which lack any form of pedestrian infrastructure whatsoever despite being part of a transit hub.

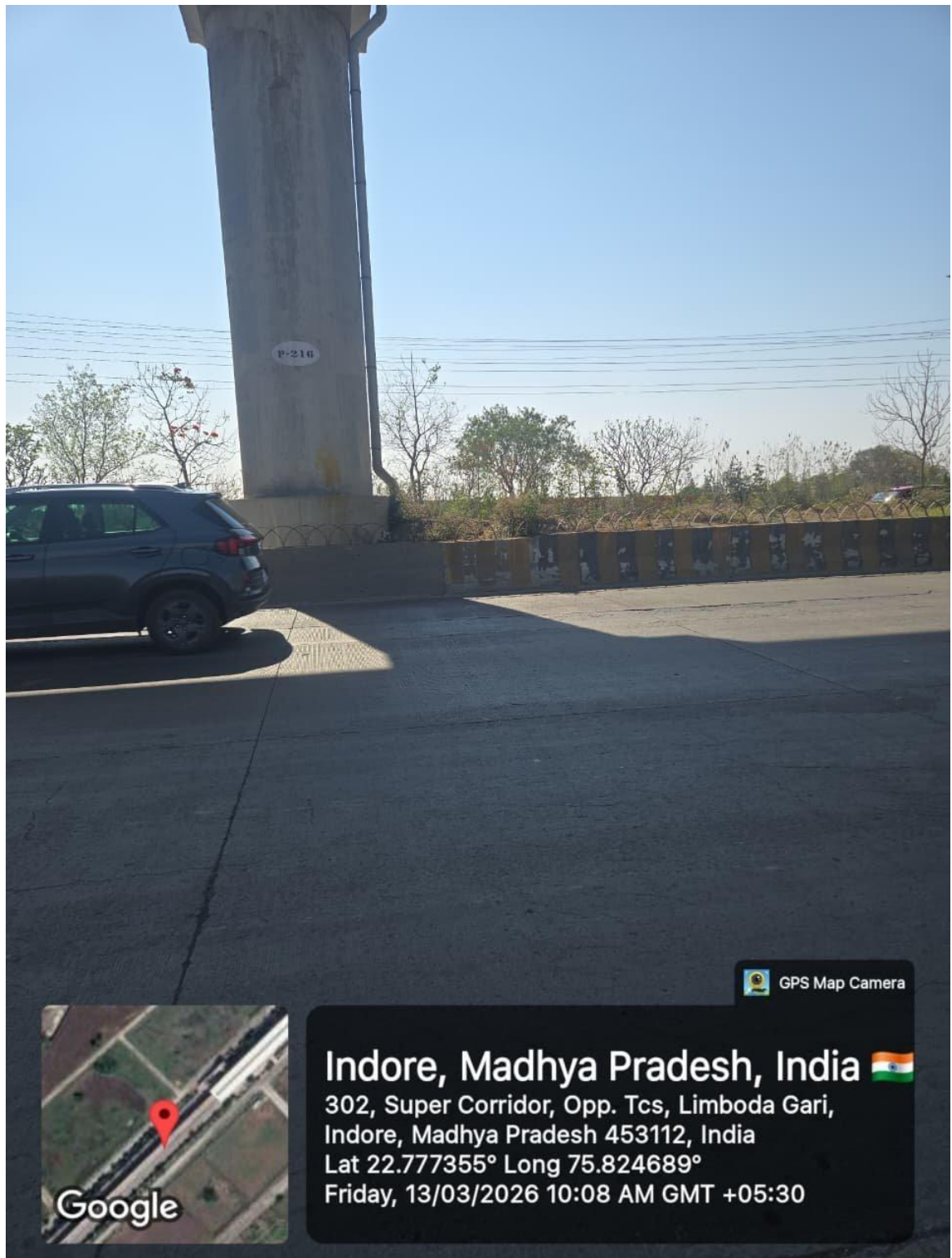


Fig. No. 7: Field Survey Photo 4: Corridor Section – Barbed Wire Barrier, No Cycle Lane

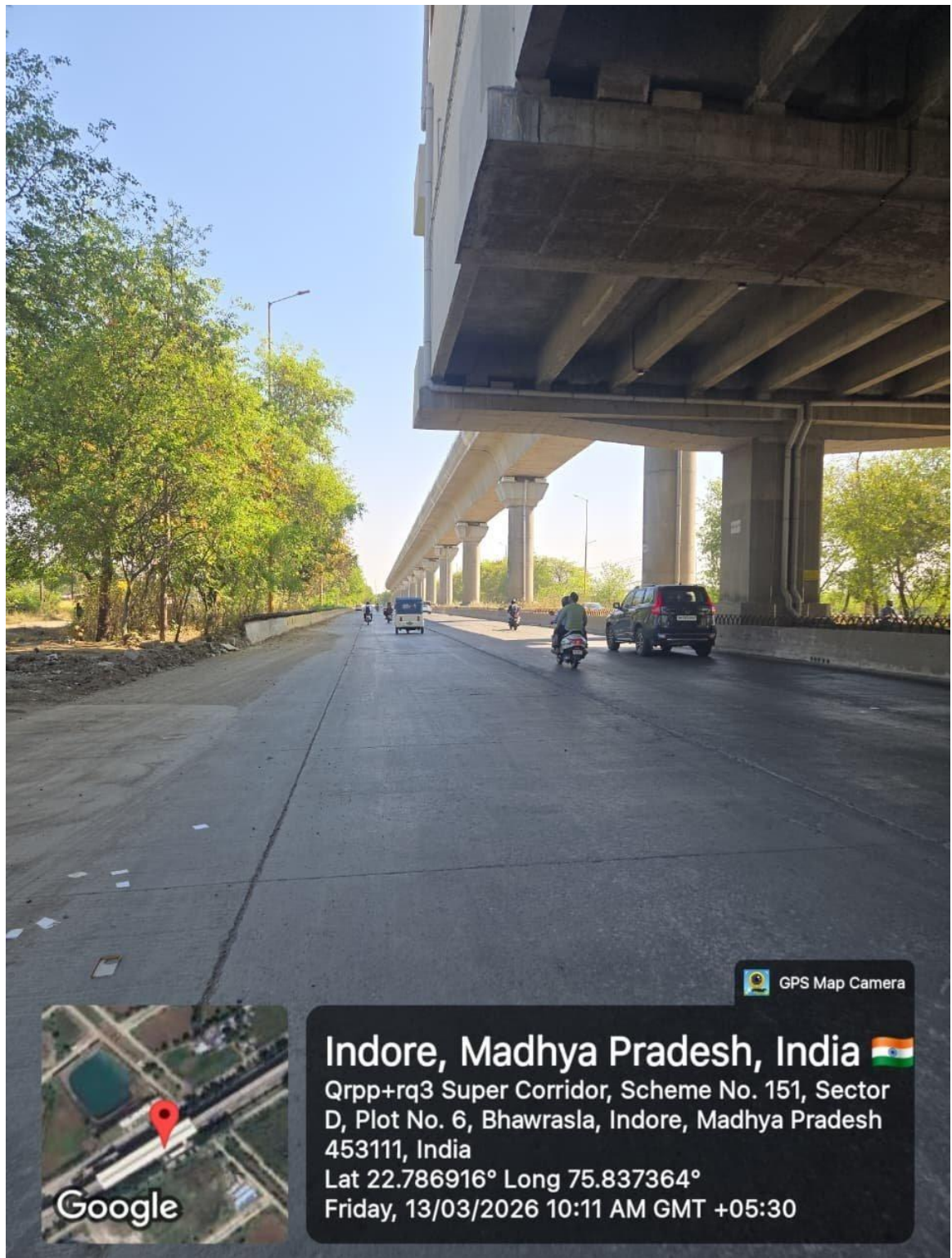


Fig. No. 7: Field Survey Photo 5: Roadside – No Footpath, No Shade, No Amenities



Fig. No. 7 field survey metro photos

Fig. No. 7: Field Survey Photo 6: Viaduct Underbelly – No Pedestrian Provision Below The Metro. There is another problem that comes from a lack of pedestrian infrastructure, which goes beyond mere inconvenience for pedestrians. The economic viability of a metro requires people actually to use it, and that in turn requires pedestrians to reach the metro stations. With only 23% of footpath coverage

residents within the theoretical 800 m metro catchment cannot walk to the station on a continuous footpath — they must either drive to the station (negating the modal shift objective) or walk on the carriageway (accepting a safety risk). As such, the productivity of the metro investment is entirely dependent upon the NMT infrastructure investment proposed in Chapter 6.

5.3 Social Infrastructure Gap: Community Facility Deficit

Social infrastructure deficiency arises as a result of the planned urbanisation failing to provide the institutions that convert the residential area into a functioning one, such as schools, health centres, parks, and community halls. The presence of zero social infrastructure facilities that conform to the standards defined by the URDPFI criteria in the 580 ha area with 15,000 residents makes the Super Corridor a worst-case scenario of the deficit of the aforementioned infrastructure facilities, described by HUDCO (2020). However, it is not only about non-conformity to standards and the absence of social infrastructure facilities in the area. Thus, children living in the study area have to walk 1.5 to 2 km to find a primary school in this climate with the temperature of more than 45 degrees C in the summer and roads having no footpath. Pregnant women have no facility that provides nutrition services in the radius of 300 m. There is no community hall or health sub-centre near elderly persons who live in the area and can walk there.

5.4 Housing Gap: Affordable Housing Non-Compliance

Housing Gap: The housing gap exists due to the inability of the corridor to accommodate households of the full range of incomes generated by the economy of the corridor itself. Thousands of employees working at the IT campuses in the Super Corridor fall into the broadest possible income quintiles — HIG software developers and LIG employees of the cafeteria and security staff. The residential property market of the corridor caters to only the highest two income quintiles, resulting in all other employees having to live in far-flung informal housing colonies.

Failure of Compliance with PMAY Urban 15% Mandate for EWS/LIG Housing

The failure to comply with the PMAY-Urban directive to provide housing for 15% of the EWS and LIG segments stems from the lack of an enforcement system for this in IDA's development consent framework. In states such as Gujarat (through GIDC) or Maharashtra (through SRA), cross-subsidy mechanisms have been included as part of the development consent. However, no such enforcement instrument exists for Madhya Pradesh. The cross-subsidy mechanism presented in this thesis – TOD FAR Bonuses – would fill this gap. (Government of India, 2015)

5.5 Design Gap: Car-Centric Block and Street Morphology

The design gap exists in the form of a spatial configuration in the fabric of residential areas at both the block level and street level. An average block length of 1.4 km, which is more than three times the recommended 400-m walkable length, leads to the diagonal distance between two opposite corners of the block being greater than 300 m. Thus, a diagonal connection between two corners in the superblock would mean that the length of the path exceeds the distance considered safe for walking in such climates. The presence of dead zones of width 50-100 m on all four street fronts means that no mixed use activity or retail is possible within the superblock. This lack of street frontage leads to the complete absence of foot traffic, leading to streets being used only for vehicular access, and making driving the sensible choice for all travel purposes. (Calthorpe, 1993; ITDP, 2013)

environment that makes walking unsafe. it becomes increasingly difficult to address over time. A policy gap can be closed by amending regulations; a mobility gap can be reduced by adding infrastructure; a social gap can be reduced by constructing facilities. But a design gap embedded in a consolidated built fabric requires land acquisition and demolition to address — processes that become more expensive and politically challenging with every year of additional development. The 28% vacant land that remains in the study area represents the last opportunity to create a walkable block structure before the corridor's spatial morphology becomes irreversible.

5.6 Green Gap: Open Space and Ecological Infrastructure Deficit

The green gap combines a quality-of-life deficiency — 4.8 sq m open space per person against a 10–12 sq m norm — with an environmental vulnerability. The rapid conversion of agricultural land and natural drainage channels to development without

compensatory green infrastructure has eliminated ecological services that the natural landscape previously provided: stormwater attenuation, groundwater recharge, micro-climatic cooling through evapotranspiration, and biodiversity habitat.

Given the hot-climate conditions in Indore, the green gap becomes a matter of public health importance. Various studies have shown a difference of up to 3-7 degrees Celsius between the surface temperatures of green areas compared to developed urban land. Additionally, the removal of agricultural land and tree cover within the corridors leads to an increase in thermal stress on pedestrians in the corridor, as well as increased cooling needs for residences located there. (Gehl, 2010)

The six planning gaps are interconnected. The policy gap is the underlying reason behind all others; the mobility gap prevents access to social infrastructure; the housing gap restricts the low-income population living farthest from transit from access to NMT networks; the design gap makes walkability changes impossible; and the green gap leads to the creation of a thermal environment that makes walking unsafe.

CHAPTER 6: PROPOSED NEIGHBOURHOOD FRAMEWORK

6.0 Introduction

This chapter presents the Human-Centric Neighbourhood Framework developed for the Super Corridor, Indore. The framework translates the diagnostic findings of Chapters 4 and 5 into a coherent set of planning standards, design principles, and regulatory instruments that collectively address all six identified planning gaps. The framework is organised across five interdependent components: TOD Zoning Hierarchy, Walkable Block Design Standards, Social Infrastructure Planning Model, Affordable Housing Integration Strategy, and Environmental and NMT Design Principles.

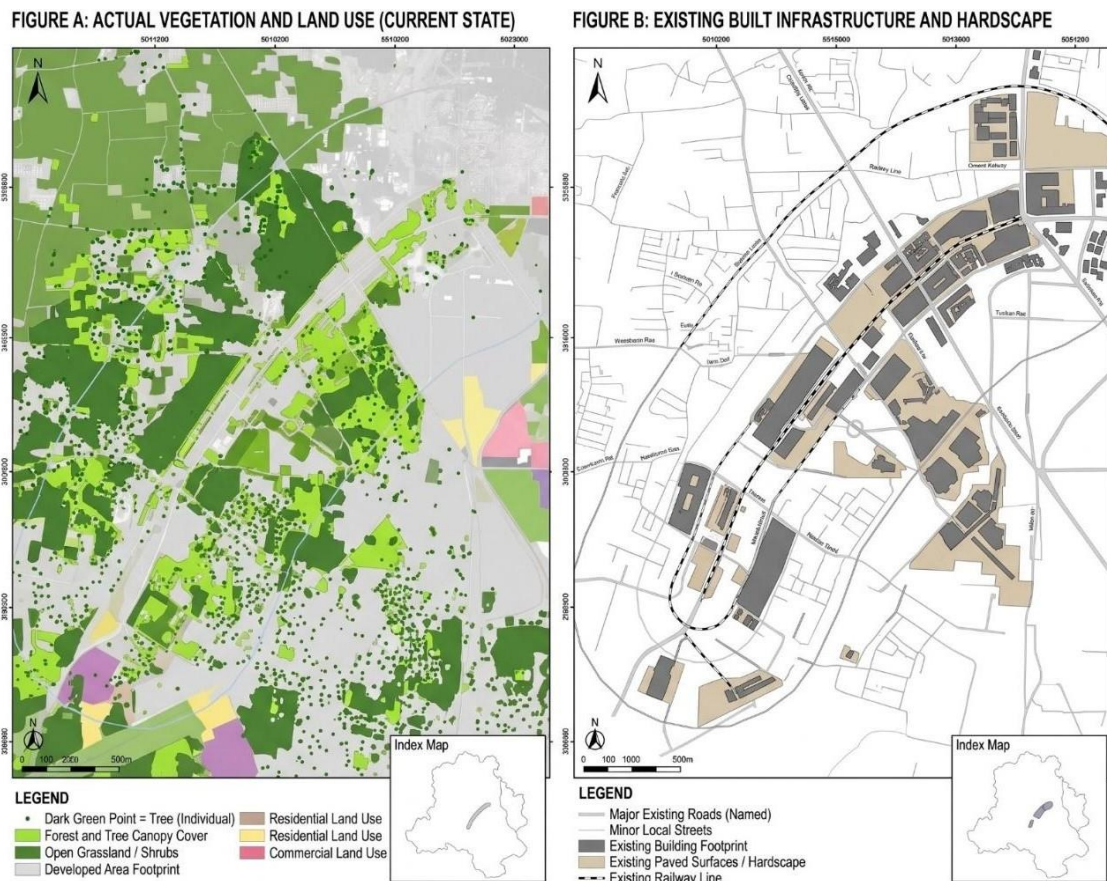


Fig. No. 14: Actual Vegetation and Land Use (Current State) and Existing Built Infrastructure and Hardscape

6.1 TOD Zoning Hierarchy

This chapter introduces the Human-Centric Neighbourhood Framework designed for the Super Corridor, Indore. This framework represents a coherent set of planning standards, design principles, and regulatory instruments that address all six planning gaps identified in Chapters 4 and 5. The framework is organised into five inter-related components: TOD Zoning Hierarchy, Walkable Block Design Standards, Social Infrastructure Planning Model, Affordable Housing Integration Strategy, and Environmental and NMT Design Principles.

Table No. 7: TOD Zoning Hierarchy – Parameters and Standards

Zone	Distance from Station	Permissible FAR	Primary Use Mix	Design Obligations
Primary TOD Zone	0–400 m	4.5	High-density mixed-use (mandatory retail/community GF)	Active frontages $\geq 80\%$ on primary streets; block perimeter $\leq 300\text{m}$; shade canopy $\geq 40\%$
Secondary TOD Zone	400–800 m	2.5–3.0	Medium-density residential with corner mixed-use	Block perimeter $\leq 400\text{m}$; neighbourhood parks $\leq 300\text{m}$; NMT links to station
Transition Zone	800 m+	1.5	Low-medium density residential; school campuses; green buffers	Green buffer $\geq 20\%$ of gross area; school sites reserved; footpaths on all roads $\geq 9\text{m}$ ROW

Source: MP TOD Policy; Author's Framework, 2026

The TOD Zoning Hierarchy defines three concentric zones based on proximity to each of the six metro stations. The hierarchy is directly derived from the MP TOD Policy's provisions related to FAR, but the hierarchy adds the important element of design requirements to make the density bonus translate into neighbourhood improvements that create better quality of life, not just higher densities within the existing pattern of car-centric development.

The Primary TOD Zone (0–400 m radius) is the most intensive zone, which provides FAR 4.5 with a mandatory provision for mixed use ground floors, continuous active frontages, and complete NMT and shade infrastructure. The crucial point is that the density bonus in the form of FAR 4.5 in the Primary TOD Zone is conditional – the developer should comply with all design requirements in this zone to get the approvals. For each of the six corridor stations, IDA should prepare a Station Area Plan to integrate principles of the Hierarchy into specific spatial plans. The Secondary TOD Zone (400–800 m) will accommodate medium-density residential development with FAR 2.5-3.0, while there would be mixed-use development around pedestrian nodes in the zone. Neighbourhood parks have to be provided within 300m of all residences and NMT infrastructure should link the whole zone to the nearby metro station. NMT infrastructure must connect the entire zone to the adjacent metro station through (Government of India, 2006)

designated pedestrian and cycling corridors. The Transition Zone (800 m+) uses the baseline FAR of 1.5 and is marked by lower-density residential development, school campuses embedded within green edges, and green buffers that maintain ecological connectivity between the nala corridors and the larger blue-green infrastructure system.

6.2 Walkable Block Design Standards

The walkable block design standards directly address the design gap by specifying maximum block perimeters and mandatory public realm obligations that must be satisfied as conditions of IDA layout approval. The core standard — a maximum block perimeter of 400 m — means that no residential development scheme above 2 ha can proceed without demonstrating that the internal block structure will generate walkable block sizes. New public streets of minimum 12 m ROW must be provided to achieve this standard, even where this requires the dedication of land from the development parcel.

Additional standards include: mandatory active frontage on all streets within the Primary TOD Zone, with a prohibited list of uses (blank walls, parking structures, boundary fences) at ground floor level; a shade tree requirement of one street tree per 8 m of length on all primary pedestrian routes, with a minimum canopy diameter of 5 m at maturity; raised pedestrian crossings at all non-signalised junctions within the Primary and Secondary TOD Zones; and a building-line setback rule that aligns building frontages with the public realm edge, eliminating the dead-zone setback gardens that currently characterise most corridor frontages.

The block design standards are enforced through a two-stage approval process: the Neighbourhood Layout Plan (new requirement, to be embedded in IDA DCR amendment) must demonstrate block perimeter compliance before detailed layout plans are considered, and the Detailed Layout Plan must demonstrate active frontage compliance, street tree specification, and public realm design before building plan approvals are granted.

6.3 Social Infrastructure Planning Model

Social infrastructure planning approach implements the URDPFI standards as compulsory development conditions rather than idealistic objectives. The approach (Government of India, 2014)

specifies a four-tier hierarchy of social facilities, each with a defined catchment radius, minimum site area, provision standard per population unit, and a funding mechanism embedded in the development consent process.

Table No. 8: Social Infrastructure Mandate per Neighbourhood

Facility Type	URDPFI Catchment	Provision Standard	Site Area	Funding Mechanism
Anganwadi / Creche	300 m walking	1 per 300m catchment	Min. 150 sq m	Developer contribution per unit; IDA Social Fund
Primary School	500 m walking	1 per 2,000 residents	Min. 0.4 ha	IDA land reservation + phased construction
Community Hall	800 m walking	1 per 800m catchment	Min. 500 sq m	IDA provision on public-use reserved plots
Neighbourhood Park	300 m walking	Min. 0.2 ha per park	0.2–2.0 ha	10% gross plot area mandatory as public OS
Health Sub-Centre	1,000 m walking	1 per 10,000 residents	Min. 300 sq m	IDA land; PHC/DHO provisioning of services

Source: URDPFI Guidelines 2014; Author's Framework, 2026

Social infrastructure requirements are mandated by implementing a Social Infrastructure Fund approach whereby all residential developments contribute towards the fund on a per unit basis when the construction plans are approved by the IDA. The funding level is adjusted to finance the building of amenities on the public lands reserved by IDA within the neighbourhoods of the development. This ensures that the provision of social infrastructure is paid for by the development of consent process rather than the government's capital projects budget.

6.4 Affordable Housing Integration Strategy

Affordable housing strategy involves designing a cross-subsidy approach using the additional FAR provided for by the MP TOD Policy to collect developer contributions for EWS/LIG housing provision.. The mechanism works as follows: a developer in the Primary or Secondary TOD Zone who opts for the enhanced FAR (above the baseline 1.5–2.0) must pay a cross-subsidy contribution of approximately ₹500–700 per sq ft

of bonus FAR area into an IDA-managed Mixed-Income Housing Escrow. The escrow is used to finance EWS/LIG units within the same neighbourhood, delivered either by IDA directly or by MPHB on IDA-reserved plots.

The spatial integration principle is central to the strategy's success: EWS/LIG units must be located within the same block — and ideally the same building — as MIG and HIG units, sharing street frontages, common areas, and amenities. This vertical integration model, demonstrated at the T3 Mixed-Income Station Precinct (Chapter 7), rejects the pattern of segregated affordable housing estates on peripheral sites and instead treats the mixed-income residential block as the fundamental spatial unit of equitable TOD. PMAY-Urban subsidy linkage for eligible EWS/LIG purchasers provides an additional financial instrument to support affordability within the cross-subsidy model. (Government of India, 2015)

6.5 NMT Network Plan

The NMT Network Plan establishes a comprehensive four-tier hierarchy of pedestrian and cycling infrastructure across the 580 ha study area, designed to achieve the target footpath coverage of 90% and cycle track coverage of 70%:

Tier 1 — Corridor Spine: A fully protected cycle track (minimum 3 m per direction, physically separated from vehicle carriageway by planted median) along the entire 17 km Super Corridor, providing safe continuous cycling access between all six metro stations and the airport terminus.

Tier 2 — Neighbourhood Links: 12 m ROW streets with continuous footpaths (minimum 2.5 m per side), shade trees every 8 m, and painted cycle lanes, connecting residential blocks to metro stations via direct routes of no more than 400 m.

Tier 3 — Last-Mile Connectors: Pedestrian paths of minimum 3 m width, with shade pergolas every 30 m in the Primary TOD Zone, linking residential interiors to the Neighbourhood Links. These paths also serve as the primary routes to anganwadis, parks, and neighbourhood halls.

Tier 4 — Station Forecourt Areas: Weather-protected, fully pedestrianised zones of 80–150 m radius around each metro station entrance, providing a safe, shaded, and amenity-rich arrival environment for all transit users. Forecourt areas include

e-rickshaw and auto-rickshaw bays, secure bicycle parking, licensed vending stalls, and drinking water facilities.

6.6 Environmental Strategies

Second, the Krishnaganj Ecological Buffer allocates 45% of the N5 site (approximately 18 ha) to serve as a permanent agroforestry, wetlands, and rainfed lake buffer, offering 15,000 cu .stormwater retention capacity, 180 agroforestry livelihoods, and ecosystem connectivity between the corridor and the Bilawali lake system. Third, the Street Tree Programmed entails one specimen tree for every 8 meters along all primary streets in the TOD areas, targeting 40% tree canopy cover by 2035, and running a street tree nursery managed by IMC

CHAPTER 7: DESIGN PROPOSALS

7.0 Introduction

This chapter presents the spatial design proposals for the Super Corridor, applying the framework principles of Chapter 6 to eight specific locations across the study area. Part A covers the three TOD Station Precinct proposals (T3, T4, T5); Part B covers the five Neighbourhood proposals (N1–N5). The proposals are presented at the level of a neighbourhood planning framework — defining block structure, land use distribution, public space network, social infrastructure locations, and housing typology — rather than as detailed architectural or engineering designs.

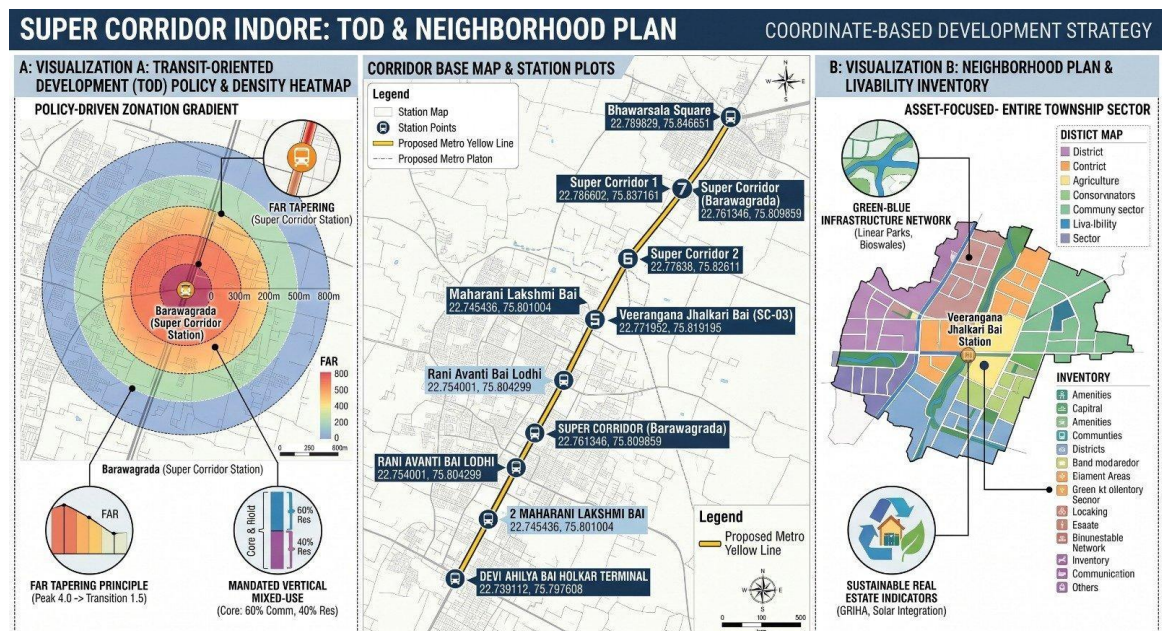


Fig. No. 13: Super Corridor Indore – TOD and Neighbourhood Master Plan (Coordinate-Based Development Strategy)

Figure 13 presents the overarching TOD and Neighbourhood Master Plan for the Super Corridor. The map shows both the TOD Policy and Density Heatmap (Part A, left panel) and the Neighbourhood Plan and Livability Inventory (Part B, right panel). The left panel illustrates the FAR tapering principle — with the highest FAR (4.0+) concentrated at metro stations and tapering to 1.5 at the transition zone — and the station plots for the corridor's six metro stations. The right panel shows the green-blue infrastructure network, the district map distinguishing neighbourhood zones, and the comprehensive inventory of proposed amenities, schools, markets, open spaces, and social infrastructure across the five neighbourhood areas.

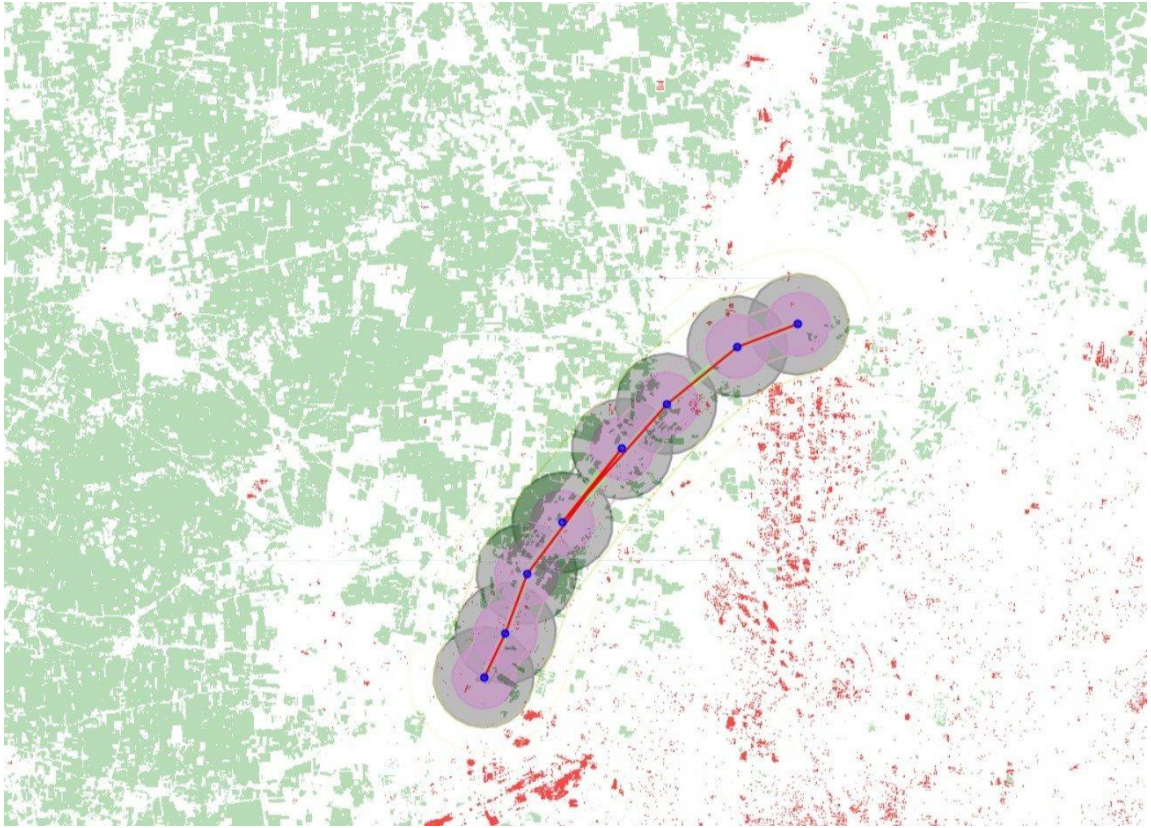


Fig. No. 11: Land Use Map with TOD Influence Zones – Super Corridor Study Area

Figure 11 shows the detailed land use distribution within the study area superimposed with the three-tier TOD influence zone boundaries. The Primary Zone (0–400 m, darkest ring) cover the immediate metro station catchments; the Secondary Zone (400–800 m, medium ring) covers the main residential development areas; and the Transition Zone (800 m+, outer ring) extends to the study boundary.

7A.1 T3 Mixed-Income Station Precinct – Scheme 54

T3 Mixed-Income Station Precinct covers 36 ha in the Scheme 54 revenue village and is designed as Indore's first vertically mixed-income TOD development. The precinct organises around a central station forecourt plaza — a weather-protected, fully pedestrianised civic space of approximately 1.2 ha that serves as the social heart of the precinct, the transit interchange point for metro, BRTS, auto-rickshaw, and e-rickshaw services, and the primary public space for the surrounding community.

Table No. 9: T3 Mixed-Income Station Precinct – Unit Mix and Distribution

Housing Category	Share (%)	Number of Units	Unit Size Range	Price/Rental Band
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EWS (Economically Weaker Section)	20%	840 units	25–35 sq m	PMAY subsidy: ₹3–5 lakh own contribution
LIG (Lower Income Group)	25%	1,050 units	40–55 sq m	₹12–18 lakh (PMAY LIG subsidy applicable)
MIG (Middle Income Group)	40%	1,680 units	65–95 sq m	₹28–55 lakh market price
HIG (Higher Income Group)	15%	630 units	120–200 sq m	₹75–150 lakh market price
Total	100%	4,200 units	—	—

Source: Author's Design Framework; PMAY-Urban Guidelines, 2015

The critical spatial principle of T3 is vertical income integration: EWS and LIG units are located in the same towers as MIG and HIG units, with identical floor plans at reduced sizes. All households share lifts, lobbies, and common spaces. Ground floors throughout the precinct are designated for active uses — retail, clinics, anganwadis, community hall, neighbourhood market — creating a mixed-use street environment that generates pedestrian activity throughout the day and evening. (Government of India, 2015)

7A.2 T4 Transit Commons Hub

T4 Transit Commons Hub covers 28 ha and addresses the 'zero-last-mile' problem — the structural absence of any physical or operational integration between the metro, BRTS, auto-rickshaws, and informal transit modes at any point on the Super Corridor. The hub unifies all transit modes under a single weather-protected concourse structure, designed as a fully integrated intermodal exchange that eliminates the chaotic kerb-side negotiation currently characterising transit access on the corridor.

The hub incorporates 220 licensed vending stalls arranged as a night-market frontage, active from 05:30 (for early morning commuters) to 23:30 (serving IT campus night shifts). The formalisation of this vending represents a conscious planning decision to treat the existing informal street economy as an economic asset to be spatially integrated and dignified rather than relocated. All 220 stalls are allocated by lottery to current informal vendors within a 200 m radius of the T4 location, providing tenure security and infrastructure support (electrical connections, water supply, waste disposal) in exchange for compliance with a vending management charter.

7A.3 T5 Airport Interchange – Airport City TOD

The hub serves as a convergence point for all forms of transport within one weather-protected concourse structure, functioning as an inter-modal hub eliminating the disorder associated with kerbside negotiations involved in accessing transit today within the corridor. The hub provides 220 licensed vending stall spaces located along a night market façade, operating between 05:30 (early morning commuter traffic) and 23:30 (night shift IT campus workers). This is the outcome of a considered decision on the part of the planners who have chosen to integrate the informal street vending economy as an asset and not as something to be displaced. All 220 stalls have been assigned by lottery to informal vendors located within a 200 m radius of the T4 site, in return for agreeing to the terms of a vending management charter.

7B: Neighbourhood Proposals – N1 to N5

Density Classification	Persons Per Hectare (PPH)	Character / Application
Low Density	50 – 150	Suburban residential, plotted housing.
Medium Density	150 – 400	Traditional urban residential, low-rise apartments.
High Density	400 – 800	Compact city centers, high-rise residential.
TOD / Transit Zones	800 – 1500+	Super Corridor Proposal (High-intensity growth)

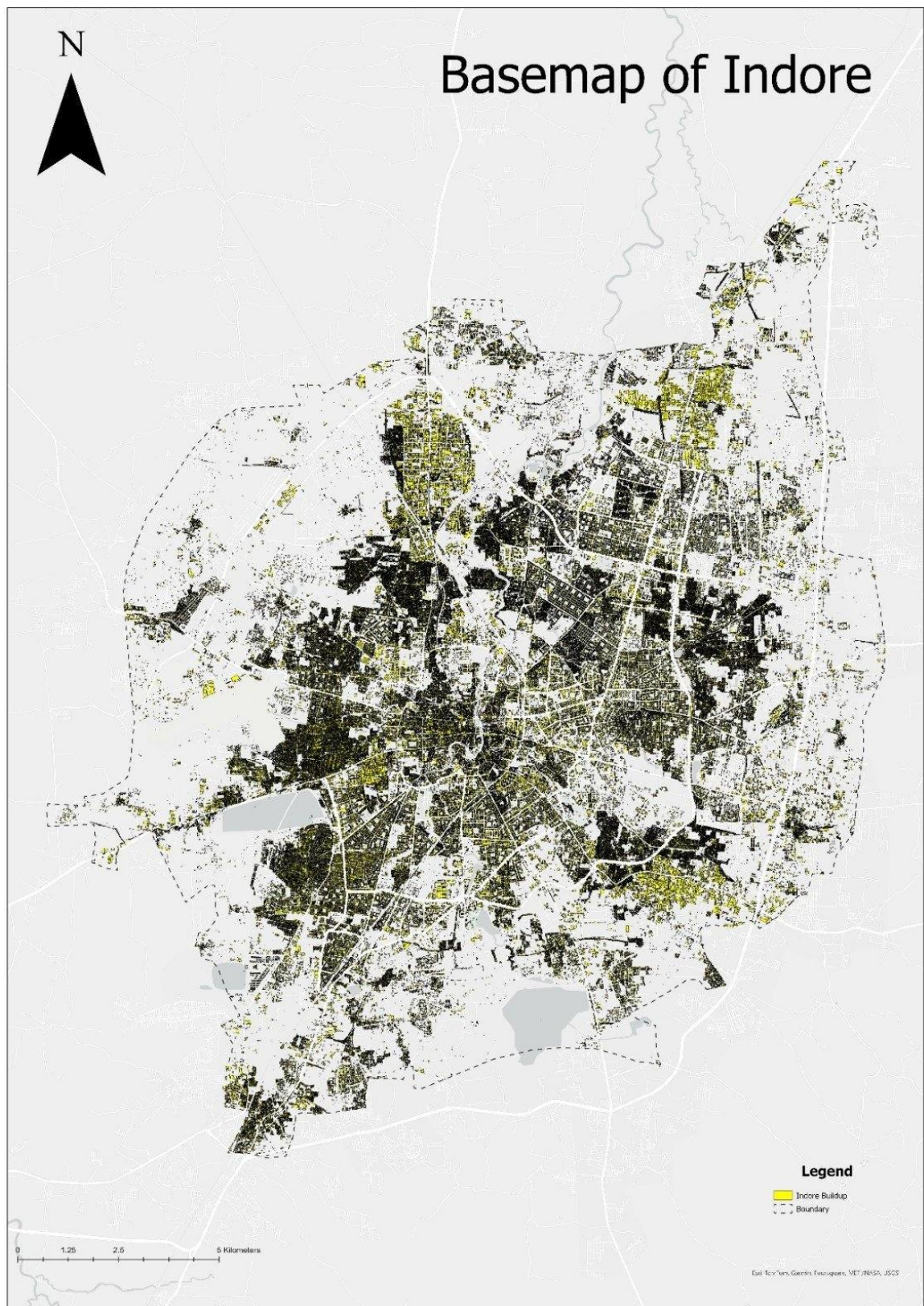


Fig. No. 12: base map of Indore city

Figure 12 below illustrates the neighbourhood basemap depicting the current development fabric, road network, and institutional boundaries of the

Villages. The map distinguishes between consolidated urban fabric, informal settlements, and vacant land, providing the spatial context for the five neighbourhood proposals.

7B.1 N1 – Vijay Nagar Extension: Superblock Retrofit

N4 is designed to respond to Tigaria Badshah, a peri-urban neighbourhood of 34 hectares that includes regularized informal settlement, plotted developments, and vacant land through the approach of gradual intensification. Under the 'zero displacement' philosophy, which underpins the project, 320 EWS/LIG housing units will be constructed on vacant plots, ensuring no displacement occurs. The approach ensures that only vacant and municipal-owned land will be used to construct new housing units. In addition to the housing component, the N4 streetscape enhancement will create 4.2 km of non-motorized transport (NMT) infrastructure by constructing footpaths, installing lighting, planting shade trees, and painting cycle lanes on existing streets. The N4 streetscape enhancement project will be implemented in three phases to align with the ward-level capital projects of IMC. In stage one, signs and markings will be installed, tree plantation and kerb repair in stage two, while footpath installation will be done in stage three. These phases guarantee immediate visible improvement that gains community buy-in to the whole programme

7B.2 N2 – Limbodi: Green Fingers Neighbourhood

N2 uses the three nalas that traverse the Limbodi revenue village as the generative structure for a 32 ha neighbourhood park system. The three nalas are formalised as designed linear parks with engineered cross-sections that combine ecological stormwater management (detention, phytoremediation, and infiltration), walking and cycling paths under nala-edge tree canopy, and urban farming plots for EWS/LIG households. The 1.8 km total linear park length creates a connected green network through the residential fabric, with parks accessible within 300 m of all N2 residents.

The 180 urban farming plots — each 50 sq m, allocated to EWS/LIG households by lottery — generate an estimated supplementary income of ₹15,000–25,000 per household per year through organic vegetable cultivation. The urban farming programme is designed as a managed community enterprise with technical support

from the IMC's horticulture department, market linkage to IMC's weekly haats, and a shared water supply system fed by nala-collected stormwater.

7B.3 N3 – Scheme 54: Civic Commons

N3 reorganises 38 ha of vacant IDA parcels in the Scheme 54 layout into a perimeter-block typology where buildings define and activate street edges. The proposal designates N3 as the pilot Walkable IDA Scheme — the first IDA development scheme in Indore to achieve full URDPFI compliance and block perimeter ≤ 360 m — serving as a prototype that IDA can replicate in future development scheme approvals across the city. The scheme achieves 78% active frontage on the corridor — a metric that measures the proportion of primary street length with activated ground-floor uses — establishing a benchmark for subsequent scheme designs. (Government of India, 2014)

The scheme is anchored by a 1.5 ha Central Civic Commons combining a primary school (1,200 sq m, 480 students), a health sub-centre (300 sq m), a community hall (500 sq m), and a public park (0.5 ha) in a single integrated civic block at the scheme's geographic centre. All five social facilities are reachable on foot within 400 m of any residence in the N3 scheme — achieving full URDPFI compliance across all categories simultaneously. (Government of India, 2014)

7B.4 N4 – Tigaria Badshah: Mixed-Income Retrofit

N4 addresses Tigaria Badshah — a 34 ha peri-urban settlement combining regularised informal housing, plotted development, and vacant plots — through an incremental intensification strategy that threads 320 new EWS/LIG housing units onto vacant plots without displacing a single existing resident. The strategy is calibrated to the 'zero displacement' principle: only genuinely vacant and municipally-owned plots are used for new affordable housing construction, avoiding any involuntary relocation.

Alongside the housing intervention, the N4 streetscape retrofit adds 4.2 km of NMT infrastructure — continuous footpaths, street lighting, shade trees, and painted cycle lanes — to the existing street network. The retrofit is phased in three stages aligned with IMC's ward-level capital works programming: signage and markings in Stage 1, tree planting and kerb repairs in Stage 2, and full footpath construction in Stage 3. This sequencing delivers immediate visible improvements that generate community support for the full programme.

7B.5 N5 – Krishnaganj: Ecological Edge Neighbourhood

Neighbourhood N5, which is located at the end of the corridor on its southern tip, represents an innovation amongst all five proposed neighbourhoods in the sense that it combines a 45% ecological buffer area of 18 ha while building a densely populated 4,200 inhabitant village-scale neighbourhood on the rest of the land (55%). This ecological buffer covers 8 ha of agroforestry area, a 3 ha rainfed lake, and 7 ha of constructed wetlands which act as a storm water retention facility (15,000 cu m), groundwater recharge area, microclimatic cooling, and as an area of livelihood of 180 agroforestry workers. Within this neighbourhood there is also a village-scale public space, the mancha (village gathering space), covering an area of 0.3 ha. It will also provide facilities for the anganwadi, community hall, and neighbourhood market. This neighbourhood will be dominated by the residential typologies of 3–4-storey row houses and courtyard blocks and will have a density of around 100 units per ha, thereby comfortably accommodating 4,200 inhabitants on 9 ha of developed land. (Calthrope, 1993)

CHAPTER 8: IMPLEMENTATION STRATEGY

8.0 Introduction

Paper designs are useless without the correct implementation of machinery. The spatial proposals of Chapter 7 requires a clear governance framework, the correct instruments of regulation, and Pragmatic phase sequence. In this chapter, the implementation machinery of the proposed neighbourhood framework is discussed, namely governance, regulation, phase sequence, and inter-agency coordination.

8.1 Super Corridor Planning Authority

A concept for a new coordinations called the Super Corridor Planning Authority (SCPA) is suggested. body as an institution to transcend the broken institutional system in the corridor, where planning jurisdiction is divided between IDA (layout approval, land MPMRCCL Corporation for the Town & Country Planning/Couple (development), Zone-G (municipal services), Building Approvals. Public Transportation & Urban Mobility (Metro Rail), Smart city (ISCDL), Affordable Housing (MPHB) & the The Airport Authority of India (AAI). The fragmentation that exists now doesn't have any unification of one particular. agency has the authority and resources to create Station Area Plans and enforce: Fit into the characteristics of neighbourhood design; coordinate delivery of infrastructure across all these. functions. The head of the Divisional Commissioner is the senior-most (in Indore) and also serves as the Chairman of the SCPA. Is an administrative officer vested with authority over all participating agencies – and also includes Ha countersigned by the designated representatives of IDA, IMC, MPMRCCL, ISCDL, MPHB and AAI. Its Responsibilities for functions include: preparation and approval of Station Area Plans for all six corridor **Street Plan** – enforcement of the TOD Zoning Hierarchy based on the street plan; SMART; Social Infrastructure Fund management; Mixed-Income; operation of the Mixed-Income. Housing Escrow; monitoring of NMT network delivery; and reporting against CACM; and the plan review and approval process. Each year framework targets are set. (Government of India, 2017) This power is granted to the SCPA by way of a formal notification under the Madhya The 32 km² Super Corridor zone is designated under the Pradesh town and country Planning act. as a Special Planning Area. This designation gives the SCPA powers of layout approval, Authorities' enforcement of law and occupancy of infrastructure in the area contrary to the existing situation. The division of these powers in IDA zones and IMC wards.

8.2 Regulatory Instruments

The neighbourhood framework has to be incorporated in the four regulatory instruments: gal and administrative framework of planning system in Indore: Note: Instrument 1 is an amendment to the IDA known as FAR-Gradient DCR Amendment. Development Control Regulations that embeds the TOD Zoning Hierarchy's FAR Requirements, prohibited uses, and locational setbacks. Requirements, active frontage, block perimeter and social requirement. The cost of infrastructure contributions, affordable housing cross-subsidy obligation and NMT. infrastructure requirements. The amendment makes compliance with all neighbourhood design standards are a prerequisite to the TOD FAR bonus, where That many more rights to higher FAR are given for something that is deserved. Instrument 2 — TOD Influence Zone Overlay: A formal overlay designation on The IDA Official Plan is on the 1st of 3 tiers (Primary, Secondary, Tertiary). Transitioning (around) all 6 metro stations – IDA's possibility to enforce zone-specific. The only exception to this is for layout approval all along the corridor, where development standards are 20mph. Design for a public notification, declaring the Discussed the proposed, four-tier NMT Infrastructure network as a Public transport reservation, Ensuring the identified footpath and cycle track routes do not suffer encroachment; and Facilitating IDA to get right-of-way via the CONSENT process.

8.3 Phasing Strategy

Table No. 10: Implementation Phasing Strategy and Milestones

Phase	Timeline	Key Actions	Lead Agency	Target Outcome
Phase 1: Regulatory Foundation	Year 1 (2026–27)	SCPA notification; UGB notification; DCR FAR-gradient amendment; Social	IDA + State Govt.	Planning framework fully operational; all regulatory

		Infrastructure Fund and Housing Escrow establishment		instruments active
Phase 2: Catalytic Investments	Year 2 (2027–28)	T4 Transit Concourse construction; T1 Boulevard pilot; N1 street carving; N4 retrofit streetscape; N3 civic commons pioneering	SCPA + MPMRCCL + IMC	Visible early wins; community confidence built; private sector interest demonstrated
Phase 3A: Station Precincts	Years 3–5 (2028–30)	T3 mixed-income precinct; T5 Airport City pioneering; all six Station Area Plans approved	IDA + MPH + PPP Developers	Station catchments activated; affordable housing delivery begun; metro ridership increase
Phase 3B: Neighbourhood Delivery	Years 5–7 (2030–32)	N2, N3, N5 neighbourhood build-out; corridor NMT spine completion; nala restoration; urban farming programme	SCPA + IMC + Community	Framework fully delivered; all framework targets met

Source: Author's Implementation Framework, 2026; based on Dholera SIR and New Town Kolkata phasing precedents

The phasing strategy is deliberately front-loaded on regulatory and institutional foundations (Phase 1), reflecting the lesson from comparable Indian planning interventions that physical investments without a supporting regulatory framework are quickly undermined by non-compliant development in adjacent areas. Phase 2's high-impact investments are specifically selected for their high visibility, low land acquisition risk, and immediate community benefit — providing the political momentum and demonstrated credibility that larger Phase 3 investments require. (Ballaney and Patel, 2009)

CHAPTER 9: FINANCIAL STRATEGY

9.0 Introduction

Delivering the Super Corridor Neighbourhood Framework will require a total capital investment of

₹4,800 crore across the three implementation phases. This chapter presents the financial strategy for mobilising and allocating this investment, detailing each funding source, the land value capture mechanism, the cross-subsidy affordable housing model, and the revenue streams available for long-term operational sustainability.

9.1 Total Investment and Funding Mix

Table No. 11: Financial Investment Breakdown – ₹4,800 Crore

Funding Source	Share	Amount (₹ Cr)	Instrument	Application
Land Value Capture (LVC)	28%	1,344	IDA land monetisation; TOD FAR auctions	Station precincts; NMT infrastructure; social facilities
Central Government Grants	22%	1,056	MoHUA Metro-TOD; PMAY-U; PM-eBus scheme	TOD planning; affordable housing; green mobility
Private Sector Equity (PPP)	18%	864	Mixed-use towers; MICE; aerocity cluster	T5 Airport City; T3 mixed-use commercial; T4 commercial
State Budget	14%	672	MP Infrastructure Grant; MPHB housing finance	Green infrastructure; NMT network; social facilities
Multilateral Loans	10%	480	AIIB/ADB climate and urban resilience programmes	Nala restoration; ecological infrastructure; EWS housing
Developer Cross-Subsidy (FAR Bonus)	8%	384	+0.5 FAR bonus → EWS/LIG Housing Escrow	Affordable housing delivery across all five neighbourhoods
Total	100%	4,800	—	—

Source: Author's Financial Model, 2026; comparable data from Ahmedabad BRTS TOD and Pune Metro TOD programmes

9.2 Land Value Capture Mechanism

The Land Value Capture (LVC) mechanism is the most innovative funding instrument of the financial strategy, contributing 28% of total investment (₹1,344 crore) and providing the primary non-governmental funding source for public-interest infrastructure. LVC operates through two channels in the Super Corridor context.

The first channel is IDA Land Monetisation: IDA holds significant land reserves within the corridor, including the 62 ha T5 aerocity site and multiple smaller public-use reserved plots throughout the study area. These lands, acquired at historical prices before the metro infrastructure investment, are now worth substantially more as a result of the transit accessibility the metro provides. Auctioning or joint-venturing these sites with private developers at market prices captures the land value uplift generated by the public transit investment — ensuring that the public sector recovers a portion of the value it has created through the metro expenditure. (MPMRCCL, 2022; MoHUA, 2017)

The second channel is TOD FAR Auctions: developers wishing to access the higher FAR provisions of the TOD Policy (above the baseline FAR of 1.5–2.0) pay an auction price for the incremental FAR above the baseline entitlement. The auction price is set at a discount to the expected increase in property value per sq ft of additional FAR — typically 30–40% of the value increment, leaving 60–70% as developer profit to incentivise participation. The auction revenue flows to the Social Infrastructure Fund and the Mixed-Income Housing Escrow.

9.3 Cross-Subsidy Mechanism and Affordable Housing Finance

The cross-subsidy mechanism directly links the financial benefits of TOD (through the FAR bonus) to the social obligation of affordable housing delivery. A developer in the Primary TOD Zone who opts for FAR 4.5 (above the baseline 1.5–2.0) is required to pay a cross-subsidy contribution of ₹600 per sq ft of bonus FAR area into the Mixed-Income Housing Escrow. On a typical 2 ha site in the Primary Zone with a FAR bonus of 2.5 (from 2.0 to 4.5), the bonus floor area is approximately 50,000 sq ft, producing a cross-subsidy contribution of ₹3 crore per site. Across all Primary Zone development sites in the corridor, this mechanism is projected to generate approximately ₹384 crore in cross-subsidy contributions — sufficient to finance approximately 800 EWS/LIG units at a construction cost of ₹4.8 lakh per unit.

PMAY-Urban subsidy linkage provides an additional financial layer: eligible EWS purchasers can access a government subsidy of ₹1.5 lakh per unit, further reducing the capital requirement from the cross-subsidy mechanism and expanding the number of households that can be accommodated within the affordable housing programme. (Government of India, 2015)

9.4 PPP Structure and Private Sector Engagement

Three PPP structures are deployed across the corridor's commercial components. The T5 Aerocity is structured as a long-term lease of IDA land to a private development consortium, with the developer financing, constructing, and operating the MICE, hotel, and premium retail components in exchange for a lease premium and annual ground rent. The T3 mixed-use towers are structured as a joint venture between IDA (contributing land at a concessional rate in exchange for the affordable housing cross-subsidy obligation) and a private developer consortium (contributing equity, design, and construction expertise). The T4 Transit Concourse vending programme is structured as a social enterprise joint venture between a vending management non-profit and IMC, with revenue from vending licence fees funding maintenance of the concourse infrastructure.

CHAPTER 10: IMPACT AND OUTCOMES

10.0 Introduction

When fully implemented, the Super Corridor Neighbourhood Framework is expected to drive substantial improvements across four domains: mobility and transit performance, social inclusion and equity, environmental quality and resilience, and overall TOD standard performance. This chapter presents the projected outcomes against the baseline conditions documented in Chapters 3 and 4, drawing on comparable evidence from Indian and international TOD implementations.

Table No. 12: Impact Metrics – Baseline vs Framework Target

Metric	Baseline (2025)	Target (2032)	Improvement	Evidence Base
Footpath Coverage	23%	90%+	+290% increase	Ahmedabad BRTS NMT programme
Cycle Track Coverage	0%	70%+	New infrastructure	Bogotá Ciclovía expansion rate
Open Space per Person	4.8 sq m	10+ sq m	+108% increase	Hammarby Sjöstad delivery
EWS/LIG Housing Share	<5%	15%	+200% increase	PMAY-Urban programme targets
Metro Walk-Share Catchment	35%	70%+	+100% increase	Delhi Metro Phase-2 NMT outcomes
Average Block Perimeter	1.4 km	≤400 m	72% reduction	N1 retrofit; N3 prototype delivery
Social Infra URDPFI Compliance	0%	100%	Full compliance	Framework mandate enforcement
Mixed-Use Ground Floors	0%	60%+	New standard	Ørestad active frontage delivery
Tree Canopy Coverage (TOD zones)	<5%	40%	+700% increase	IMC street tree programme targets

EWS/LIG Housing Units Added	0 units	~3,000 units	New delivery	Cross-subsidy mechanism model
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Source: Author's Projections, 2026; Comparable Indian and International TOD Programme Outcomes

10.1 Mobility and Transit Performance

The NMT Network Plan's full implementation will deliver a continuous footpath network on 90% of corridor streets — a 300% improvement from the current 23% — and a protected cycle track network covering 70% of the corridor's primary spine. The critical mobility impact, however, is not merely the infrastructure itself but what it enables: the transformation of the metro stations' theoretical 800 m catchment into a practical walkable catchment, increasing the proportion of corridor residents within comfortable walking distance of a station from 35% to 70%+.

The addition of shade infrastructure on all primary pedestrian routes extends the thermally-adapted effective walkable radius from approximately 150 m (current, unshaded) to 400 m (proposed, shaded), a 167% increase in functional catchment area. This improvement is achieved without any increase in metro infrastructure investment — it is entirely a function of the pedestrian environment quality that the NMT programme delivers. The T4 Transit Commons hub additionally extends the effective transit catchment to residents 2–3 km from the station through the integrated e-rickshaw and auto-rickshaw feeder system.

The projected increase in metro ridership as a result of these improvements — based on comparable evidence from Delhi Metro's Phase 2 NMT infrastructure programme (Agarwal, 2015)

— is 25–35% above the baseline within two years of NMT network completion. This ridership increase has direct financial implications for the metro's operating economics and for the case for future metro network expansion within Indore.

10.2 Social Inclusion and Equity

The social impact of the framework operates across three dimensions: social infrastructure access, affordable housing delivery, and livelihood generation. The social infrastructure mandate will deliver full URDPFI compliance across all five facility categories within the five neighbourhood plan areas — bringing primary school catchment coverage from 0% to 100%, anganwadi coverage from 0% to 100%,

health sub-centre coverage from 0% to 100%, neighbourhood park coverage from 10% to 100%, and community hall coverage from 0% to 100%. For the study area's current 15,000 residents, this represents a transformation from a residential zone without community institutions to a functioning neighbourhood with the full complement of social services within walking distance.

The mixed-income housing programme will deliver approximately 3,000 EWS/LIG units across the five neighbourhood proposals and three TOD station precincts — increasing the corridor's affordable housing share from less than 5% to approximately 15% of total stock. The spatial integration of these units within mixed-income blocks, rather than in peripheral estates, ensures that low-income residents benefit from the same pedestrian infrastructure, social facilities, and transit access as their higher-income neighbours.

The livelihood generation programme provides around 580 direct livelihoods.

The plot for urban farming is for 180 low-income households. The licensed vending stalls are T4, agroforestry come in N5, while the landlords collect their V1s and V2s by UIP5 Postpaid rate. These are not only an extra source of income, but planned economic activities integrating low-income residents into the neighbourhood's economy — within the corridor's neighbourhood economy — giving low-income residents a stake Place them in the developmental process of the corridor and not as an out of place onlooker.

10.3 Environmental Outcomes

The environmental impact of the framework operates across three scales. At the micro-scale, the street tree programme — targeting 40% tree canopy coverage on all primary streets within TOD zones — will reduce ambient temperatures on shaded streets by an estimated 3–5°C during peak summer hours, based on comparable studies of urban canopy effects in Indian cities. This temperature reduction expands the effective pedestrian catchment of metro stations by extending the comfortable walking radius, creates more livable outdoor spaces for residents, and reduces the cooling energy demand of adjacent buildings.

At the neighbourhood scale, the nala restoration programme (N2) will restore 1.8 km of degraded natural drainage channels as functional linear parks with stormwater treatment capacity of 38,000 cu m per year, eliminating the current risk of flash flooding in the Limbodi catchment and restoring groundwater recharge function to the

nala corridor. The N5 ecological buffer (18 ha) will protect a critical groundwater recharge zone and provide 15,000 cu m of stormwater retention capacity at the corridor's most vulnerable southern terminus.

The nala restoration work coupled with the ecological buffer and the inaccessible forest restoration, acted on the corridor scale. The level of greenery in the study area is to be boosted by street tree programme, which would raise the proportion of green space from the existing 3.5% to nearly 15% (29 to 87 ha) — is aimed directly at expanding green area by 200% or more. Considers thermal stress conditions reported in existing conditions analysis

10.4 TOD Performance Improvement

The overall rating for the Super Corridor's TOD projects (on the ITDP)

Standard is expected to get better than the current 'Deficient' rating given (aggregate score In the near future (mid-2010s) approximately 22% (out of 100) of birds attain 'Standard' or 'Bronze' status at full implementation. The Walk dimension is expected to go from 23 to 75+ (at 90%+, where 70%+ is the minimum think mild, 90%+ is the benchmark, and 90%–100% is the benchmark+ category).footpath coverage and shade infrastructure targets), the Cycle dimension from 0 to 65+ (reflecting the protected cycle track network), the Connect dimension from 15 to 70+ Recent developments in the urban planning master plan respond to all three previously mentioned criteria: the ≤ 400 m block perimeter; and the Mix dimension of 20 to 60+ (mixed use provisions on first floor required). (ITDP, 2013)

The collective improvement brings about a change from a transport corridor that fails to generate any TOD benefit from its metro investment to a nationally recognised model of human-centric corridor planning The achievement of a 'Standard' or 'Bronze' ITDP rating would position the Super Corridor as one of the highest-performing TOD corridors in central India — a benchmark that could catalyse similar framework adoption in Bhopal, Jabalpur, and other Madhya Pradesh cities developing metro projects.

CHAPTER 11: CONCLUSION

11.0 Summary and Key Findings

This thesis investigated the planning failure of the Super Corridor, Indore — a corridor where significant public and private investment in transit and knowledge-economy infrastructure coexists with severely deficient residential neighbourhood conditions — and has developed a comprehensive Human-Centric Neighbourhood Framework to address this failure before it becomes structurally irreversible. The investigation has confirmed and quantified six interconnected planning gaps: Policy, Mobility, Social Infrastructure, Housing, Design, and Green, each rooted in the structural absence of neighbourhood-scale regulatory controls from India's urban planning system.

The proposed framework addresses all six gaps through five interdependent structural components: a TOD Zoning Hierarchy that ties density entitlements to neighbourhood design obligations; walkable block design standards (≤ 400 m perimeter) that create a spatially coherent urban fabric; a social infrastructure mandate that delivers URDPFI-compliant facilities as development conditions; a cross-subsidy affordable housing model that achieves PMAY compliance without spatial segregation; and an NMT network and environmental strategy calibrated to Indore's hot-climate context. The framework is applied through five neighbourhood proposals (N1–N5) and three TOD station precincts (T3–T5), operationalised through the SCPA governance model, four regulatory instruments, a three-phase implementation timeline, and a ₹4,800 crore investment programme. (Government of India, 2014)

11.1 Thesis Contributions

Level of Planning	Area (Ha)	Avg. FAR	Total Built-up Area (sq.m)	Est. Population	Density (PPH)
Macro Level (Entire Site)	580	2.5	14,500,000	4.64 Lakhs	~800

TOD Influence Zone	406	3.0	12,180,000	3.88 Lakhs	~950
Station Area (Per Station)	60	4.5	2,700,000	86,400	~1,440
Neighbourhood Cluster	30	3.0	900,000	28,800	~960
Block Level (Walkable Unit)	8	3.0	240,000	7,680	~960

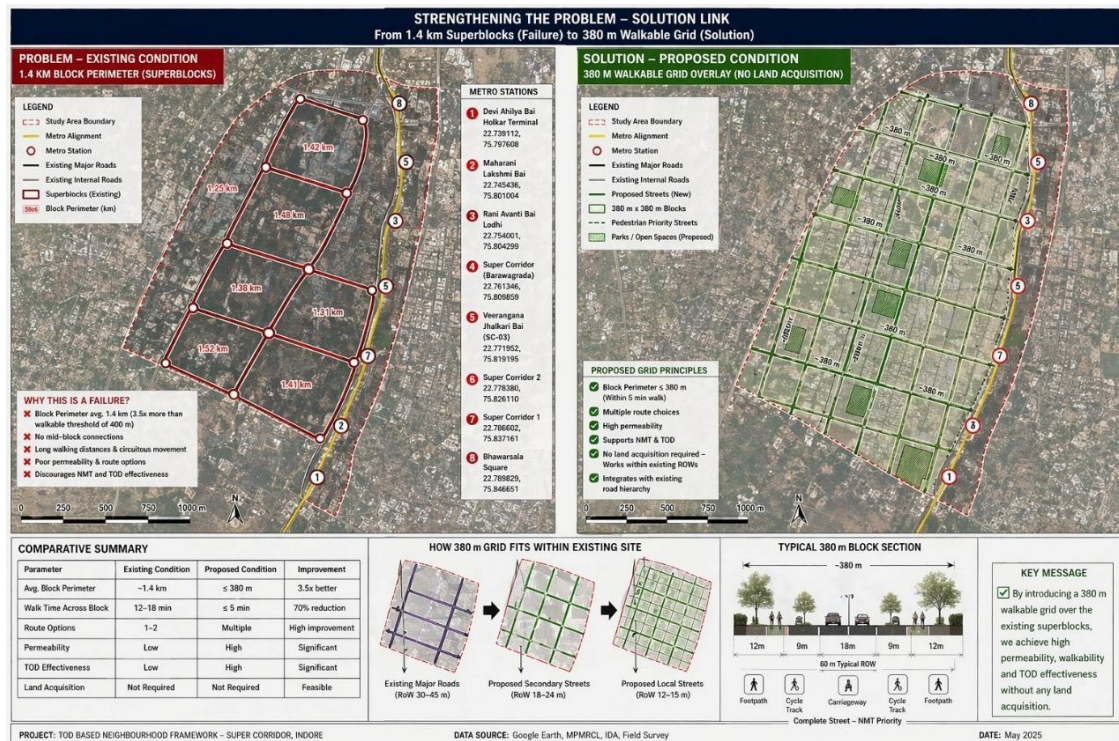


Fig. No. 15: Proposed Walkability Grid

Figure 15 presents the five principal contributions of this thesis, summarised in the five-column diagram above. Each contribution addresses a specific research gap

identified in Chapter 2 and advances the state of knowledge and practice in Indian urban planning.

Contribution 1 — Neighbourhood-Scale Planning Framework: This thesis provides the first comprehensive neighbourhood-scale planning framework for a transit corridor in a Madhya Pradesh city, filling the regulatory gap between macro-scale Master Plan zoning and plot-scale DCR provisions. The framework is designed for direct adoption by IDA and provides a model for similar regulatory instruments in other Indian cities with metro corridors and IDA-type development authorities.

Contribution 2 — Thermally Adapted Walkability Standard: The thesis develops a hot-climate walkability assessment methodology that introduces shade infrastructure as a variable in the calculation of effective pedestrian catchment radii. This methodology demonstrates that the standard 800 m TOD catchment radius is reduced to approximately 150–200 m in unshaded conditions at 45°C — a finding that fundamentally challenges the applicability of temperate-climate TOD standards in Indian cities and calls for a climate-differentiated approach to station area planning across India's metro network.

Contribution 3 — Social Infrastructure as Structural Generator: The thesis operationalises the concept of social infrastructure as a structural generator of neighbourhood form — anchoring street networks, public spaces, and residential blocks around schools, parks, and health centres — rather than as a residual use accommodated on leftover land. This approach, embodied in the N3 Civic Commons prototype, provides a replicable model for transforming IDA's layout scheme design process.

Contribution 4 — Vertically Integrated Mixed-Income Housing: The T3 Mixed-Income Station Precinct provides a tested spatial model for vertically integrating EWS/LIG housing within the same towers as MIG and HIG units, demonstrating that PMAY compliance can be achieved without spatial segregation. The cross-subsidy mechanism that provides funding for this integration — tying affordable housing to TOD FAR bonuses funding — offers a means of operation that is sustainable without relying on outside funding government budget allocations.

Contribution 5 — Phased Implementation Framework for IDA Contexts: The architecture outlined in Chapter 8 is an elaborated implementation architecture,

institutionally-grounded pathway for framework delivery that engages the specific regulatory instruments, governance structures, and financial mechanisms of the IDA/IMC/MPMRCCL institutional context. This level of specificity of implementation is conspicuously not found in the repertoire of Indian planners and is a direct response to Research Gap G5.

11.2 Replicability for Indian Cities

Replicability is a key goal of the Super Corridor framework.

Furthermore, the six-gap diagnostic protocol – Policy, Mobility, Social, Housing, Design, Green is introduced. In addition, the six-gap diagnostic (PMDHDG) is presented; Policy, Mobility, Social, Housing, Design, Green.

These can be used for any Indian transport corridor based on the use of publicly available data sources. Standard field survey techniques were also used. The TOD Zoning Hierarchy's parameters (FAR 4.5/2.5–3.0/1.5; zone radii 0–400m/400–800m/800m+) are calibrated to the provisions adherence to the Metro Rail Policy 2017 and URDPFI Guidelines, that they can be transferred to other In any metro area with a State TOD Policy. (Government of India, 2017)

Cities including Bhopal (where a metro project is under development), Nagpur (where the Metro Phase 2 expansion is being planned), Nain Vitality is planning to roll out a bus-based rapid transport system to Nain. Nain Vitality plans to run an urban bus-based rapid transport network in Nain (where the Metro has created plans), and similarly oriented TOD opportunities can be found around its own corridors), and Surat (where fast expansion of the IT sector) are some examples of these TOD opportunities. Immediate potential corridors in which is driving corridor development that is similar to (as in Indore). The application candidates included candidates for the framework. For each situation, the particular design criteria would have to be adjusted to regional climate, population, and institutional set-up. However, the analytical protocol and the structure of the framework of the analysis itself would transfer.

At the national level, the thesis's demonstration that neighbourhood-scale planning can be embedded in the development consent process through DCR amendments and social infrastructure fund mechanisms — without requiring new legislation — suggests a policy pathway for the Ministry of Housing and Urban Affairs (MoHUA) to institutionalise neighbourhood-scale planning as a requirement of the Metro Rail

11.3 Future Scope

The thesis acknowledges several dimensions that merit future research and investigation. Transit demand modelling — using agent-based simulation or choice-model regression analysis of residential location and travel behaviour data —

would quantify the ridership impact of the proposed NMT infrastructure improvements, strengthening the financial case for corridor investments. Detailed hydrological and hydraulic modelling of the N2 nala restoration and N5 ecological buffer would enable accurate sizing of stormwater infrastructure and quantification of flood risk reduction benefits. A longitudinal study of the T3 Mixed-Income Station Precinct — tracking the lived experience of vertical income integration from the perspective of EWS and LIG residents over 5–10 years — would produce the empirical evidence base for or against the replicability of the mixed-income model in other Indian cities.

The thermal comfort hypothesis — that shade infrastructure can extend the effective walkable radius from 150 m to 400 m in 45°C conditions — requires empirical validation through outdoor thermal comfort measurement surveys using physiological equivalent temperature (PET) or thermal stress index (TSI) methodology. A coordinated measurement campaign across comparable Indian street environments (shaded and unshaded, at comparable temperatures) would provide the scientific basis for a revised, climate-differentiated TOD catchment standard applicable to India's hot-climate cities.

Finally, the financing model for the ₹4,800 crore investment programme merits detailed financial modelling — including cash flow projections for each funding source, sensitivity analysis of land value assumptions, and assessment of the cross-subsidy mechanism's performance across different development market conditions — to strengthen the business case for SCPA establishment and the regulatory amendments required for framework implementation.

IT investment is accelerating. Residential growth is intensifying. The 28% vacant land that remains in the study area represents the last planning window — perhaps five to seven years — before the development pattern consolidates into a car-centric, socially deficient, and exclusionary form that is structurally difficult to reverse. This thesis argues, on the basis of rigorous analysis, international precedent, and evidence-based design, that the neighbourhood-scale planning framework developed herein is achievable, affordable, and capable of transforming the Super

Corridor from a cautionary tale of transit investment without TOD into a national model of human-centric corridor planning — if acted upon with the institutional commitment and regulatory urgency that the moment requires.

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APPENDICES

Appendix A: Field Survey Methodology and Transect Details

The walkability field survey was conducted over three consecutive days (19–21 March 2026) along the Super Corridor between Vijay Nagar Extension (Ring Road junction) and Krishnaganj (Airport terminus). Six survey transects were established, each centred on one of the six corridor metro stations. Each transect covered a 400 m cross-section perpendicular to the corridor axis and a 400 m segment along the corridor axis on both sides of the station entrance.

Survey instruments used: (i) GPS-enabled smartphone with Google Maps track recording for footpath continuity measurement; (ii) Canon EOS 90D camera for photographic documentation; (iii) Garmin Forerunner 945 GPS watch for distance measurement; (iv) ThermoWorks ThermoMap ONE infrared thermometer for surface temperature measurement; (v) structured walkability scorecard adapted from ITDP's Pedestrian Environment Quality Index.

Timing of surveys: All pedestrian environment surveys were undertaken from 09.00 To lead into the morning peak condition during the day between 12:00 IST to 12:00 Ist. Thermal measurements were carried out The sampling period was during the peak period of thermal stress, between 13:00 and 15:00 hours. Night-time On the first survey day, between 20:00 and 22:00 all the lighting surveys were undertaken.

Appendix B: GIS Data Sources and Processing

Satellite Imagery: ISRO Bhuvan Resourcesat-2 LISS-IV imagery (2.5 m spatial)

resolution) for 2015, 2019, and 2024. Google Map and Google Earth historical images from 2000, 2005.

Sources: Google Earth Pro, 2005- and 2010. All the images were treated in QGIS 3.28. Firenze. Vector Data: IDA Layout Plans (scanned & georeferenced); Indore Master Plan 2035 base map (sourced from IDA GIS Cell); IMC Ward Boundaries (sourced from IMC Data for the maps is as of August 27, 2010. Map data is from August 27, 2010; Metro Yellow Line alignment and station data are from MPMRCCL. The alignment of the National Highway (from: NHAI). Analysis: Digitisation of land use was carried out through on screen heads-up digitisation. The data types for developing QGIS following the URDPFI land use system classification.

Geographic Positioning information was used to record segments of the footpath and compared to total .The total length of roads in the study area. This study showcases TOD influence zone catchment analysis.This project demonstrates TOD influence zone catchment analysis. From the Network-based ones, change to Euclidean buffers centred on the station entrance points.Convert from the Network-based to Euclidean buffers centred on the station entrance points. To represent a conservative estimation of the catchment coverage, walksheds were determined.

Appendix C: Glossary of Key Terms

BRTS: Bus Rapid Transit System
DCR: Development Control Regulations EWS: Economically Weaker Section
FAR: Floor Area Ratio (ratio of total building floor area to plot area) GIS: Geographic Information System
HIG: Higher Income Group
IDA: Indore Development Authority IMC: Indore Municipal Corporation
ISCDL: Indore Smart City Development Limited
ITDP: Institute for Transportation and Development Policy LIG: Lower Income Group
LVC: Land Value Capture
MICE: Meetings, Incentives, Conferences, and Exhibitions MIG: Middle Income Group
MP-2035: Indore Master Plan 2035
MPHB: Madhya Pradesh Housing Board
MPMRCCL: Madhya Pradesh Metro Rail Corporation Limited
NMT: Non-Motorised Transport (pedestrian and cycling infrastructure)
NUTP: National Urban Transport Policy 2006
PMAY-U: Pradhan Mantri Awas Yojana – Urban
ROW: Right of Way (reserved road corridor width) SCPA: Super Corridor Planning Authority (proposed) TOD: Transit-Oriented Development
UGB: Urban Growth Boundary
URDPFI: Urban and Regional Development Plans Formulation and Implementation Guidelines

ROW: Right of Way (reserved road corridor width)

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