

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS: A STUDY OF KOLKATA STREET MARKETS

A THESIS PROJECT

Submitted

in the partial fulfilment of the requirements for the award of the degree of

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DECLARATION

I **AKANKSHA DUTTA**, Scholar No **2211002106** hereby declare that the thesis titled **Spatial Conflict Between Street Vendors And Pedestrians: A Study Of Kolkata Street Markets** 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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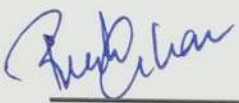
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सारांश

भारत की किसी भी व्यस्त बाज़ार गली से गुज़रिए और आपको एक ही समस्या दिखेगी- दुकानदार और पैदल चलने वाले लोग लगातार एक-दूसरे के रास्ते में आते रहते हैं। कोलकाता में, जहाँ ज़्यादातर लोग पैदल चलते हैं या सार्वजनिक परिवहन का उपयोग करते हैं, यह रोज़ाना की एक गंभीर सुरक्षा समस्या है।

इस अध्ययन में कोलकाता के दो व्यस्त बाज़ार क्षेत्रों को देखा गया: गरियाहाट मार्केट और न्यू मार्केट। दोनों जगहों पर फेरीवालों ने फुटपाथ का अधिकांश हिस्सा घेर रखा है, जिससे पैदल चलने वालों के लिए लगभग कोई जगह नहीं बचती। एक सामान्य कार्यदिवस पर सात घंटे के सर्वेक्षण में पाया गया कि हर 10 में से लगभग 4 पैदल यात्री सड़क पर चलती गाड़ियों के बीच चलने के लिए मजबूर थे। सबसे बुरी स्थिति बर्ट्राम स्ट्रीट पर थी, जहाँ दिन के हर घंटे में 10 में से 6 से अधिक पैदल यात्री सड़क पर थे।

अध्ययन में यह भी पाया गया कि स्थायी स्टॉल सबसे ज़्यादा समस्या पैदा करते हैं, संकरी गलियाँ चौड़ी सड़कों की तुलना में कहीं अधिक प्रभावित होती हैं, और यह टकराव शाम 5 से 6 बजे के बीच अपने चरम पर पहुँचता है।

ज़रूरी बात यह है कि यह शोध फेरीवालों को हटाने की बात नहीं करता। वे सड़क पर इसलिए हैं क्योंकि उनके ग्राहक वहाँ हैं, और क्योंकि पथ विक्रेता अधिनियम 2014 उन्हें वहाँ रहने का कानूनी अधिकार देता है। असली समस्या यह है कि फुटपाथ पर कभी कोई स्पष्ट रेखा नहीं खींची गई। न कोई वेंडिंग ज़ोन बनाया गया, न कोई वेंडर सर्टिफिकेट दिया गया। टाउन वेंडिंग कमेटी कागज़ों पर तो है, लेकिन व्यवहार में कुछ नहीं करती।

इस शोध में सुझाया गया है कि फुटपाथ पर एक रेखा खींची जाए-एक तरफ फेरीवालों को जगह दी जाए और दूसरी तरफ पैदल चलने वालों को-और इसे पथ विक्रेता अधिनियम 2014 के तहत लागू किया जाए। यदि यह प्रस्ताव लागू हो जाए, तो तीन स्थलों पर सड़क अतिप्रवाह 20% से नीचे और बर्ट्राम स्ट्रीट पर 25% से नीचे आने की उम्मीद है।

मुख्य निष्कर्ष यह है: यह टकराव अनिवार्य नहीं था। यह एक योजना विफलता का नतीजा है। समाधान बेदखली नहीं-समाधान है व्यवस्था।

मुख्य शब्द: पथ विक्रेता, पैदल यात्री संघर्ष, सड़क अतिप्रवाह, वेंडिंग ज़ोन सीमांकन, पथ विक्रेता अधिनियम 2014, कोलकाता, बाज़ार गलियाँ, स्थानिक नियोजन, फुटपाथ, अनौपचारिक अर्थव्यवस्था।

ABSTRACT

Walk down any busy market street in India and you will notice the same problem-vendors and pedestrians are constantly bumping into each other. In Kolkata, where most people travel on foot or by public transport, this is more than just an annoyance. It is a daily safety risk.

This study looked at two busy market areas in Kolkata: Gariahat Market and New Market. At both places, vendors have taken over most of the footpath, leaving pedestrians with almost no space to walk. A seven-hour survey on a regular weekday found that nearly 4 in every 10 pedestrians were forced to walk on the road alongside moving vehicles. At the worst spot-a narrow lane behind New Market on Bertram Street-more than 6 in 10 pedestrians were on the road at every hour of the day.

The study also found that fixed stalls cause the most consistent problems, narrow streets suffer far more than wider ones, and the conflict peaks between 5 PM and 6 PM across all four survey spots.

Importantly, this thesis does not say vendors should be removed. They are on the street because their customers are there, and because the Street Vendors Act 2014 gives them the legal right to be there. The real problem is simpler: no one has ever drawn a clear line on the footpath to say which part belongs to vendors and which part belongs to pedestrians. No vending zones have been marked. No vendor certificates have been given out. The Town Vending Committee-the body the law created to handle all of this-exists on paper but does nothing in practice.

The solution proposed in this thesis is called Vending Zone Demarcation with Typology-Based Spatial Allocation. In plain terms: draw a line, give one side to vendors and the other to walkers, and use the legal tools that already exist under the Street Vendors Act 2014. Specific plans are laid out for all four problem spots, with clear zone sizes and vendor rules. No new government body needs to be created to make this work.

If put into action, the proposal is expected to bring road overflow below 20% at three of the four spots, and below 25% at Bertram Street after a one-way traffic change.

The main finding is simple: this conflict is not unavoidable. It happened because the right tools were never used. The fix is not eviction-it is organisation.

Keywords: Street vendors, pedestrian conflict, road overflow, vending zone demarcation, Street Vendors Act 2014, Kolkata, market streets, spatial planning, footpath, informal economy.

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ABBREVIATION

Abbreviation	Full Form
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AutoCAD	Automatic Computer Aided Design
CBD	Central Business District
COVID-19	Coronavirus Disease 2019
GIS	Geographic Information Systems
GPS	Global Positioning System
HCM	Highway Capacity Manual
IRC	Indian Roads Congress
KMC	Kolkata Municipal Corporation
NASVI	National Association of Street Vendors of India
NUTP	National Urban Transport Policy
PLOS	Pedestrian Level of Service
PPS	Project for Public Spaces
QGIS	Quantum Geographic Information System
ROW	Right of Way
SEM	Structural Equation Modelling
SVA	Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014
TRB	Transportation Research Board
TVC	Town Vending Committee
URDPFI	Urban and Regional Development Plans Formulation and Implementation
WIEGO	Women in Informal Employment: Globalizing and Organizing

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Walk through any busy market street in an Indian city on an ordinary afternoon and something becomes clear almost immediately. The footpath is not being used the way it was designed to be used. On one side there are sari stalls. On the other there are fruit carts, snack vendors, and small mobile shops. In the narrow space in between, a stream of people is trying to squeeze through. Someone stops to look at a product, and suddenly everyone behind them has to stop too. Two-wheelers and cars move faster on the road than people move on the pavement. This is not an unusual sight. It is what happens every single day on commercial streets across India. And it is the problem that this thesis is trying to understand.

India is home to one of the largest informal street economies in the world. According to the National Urban Livelihoods Mission, there are approximately one crore street vendors operating across Indian cities. This figure is an undercount. The actual number is considerably larger, and it has been growing for decades. Street vendors are not outsiders to the city. They are part of how the city works. They sell the vegetables that families buy in the morning, the tea and snacks that workers consume during the day, and the flowers that people carry to places of worship. They provide a service at a price that most people in Indian cities can afford. They are, in the truest sense, a daily utility.

Yet, from a planning and administrative perspective, street vendors are very often treated as a problem. Municipal corporations conduct periodic clearance drives to remove them from footpaths. Police ask them to move on. Traders in formal shops complain that vendors take away their customers while simultaneously blocking access to their stores. Residents complain about congestion and the narrowing of the walkable path. And pedestrians, caught in the middle, simply adapt. They step off the footpath onto the road. They weave between carts and stalls. They accept that walking on the pavement is, in many market streets, simply not possible.

This adaptation has become so normal that most people no longer think of it as a problem. It is just how market streets work in India. But planners cannot accept this as

a permanent condition. A footpath that cannot be walked on is a failed piece of infrastructure. A pedestrian who is forced to walk on the road is a pedestrian who is at risk. And a vendor who cannot run their business without the threat of eviction is a worker without security. The system is failing both groups simultaneously, and no one is taking responsibility for the failure.

This thesis is an attempt to understand that failure, and to look for a way out of it. It focuses on commercial market streets in Kolkata, one of India's most densely populated and pedestrian-dependent cities. Kolkata has a long and deeply embedded tradition of street vending. Its market streets are among the busiest and most chaotic in the country. And the conflict between vendors and pedestrians on those streets is among the most visible urban planning problems the city faces. By studying this conflict carefully, measuring it, and analysing it without taking sides, this thesis hopes to offer something useful: a framework for thinking about how market streets can be made to work for both the people who sell on them and the people who walk through them.

The broader context for this study is a rapidly urbanising India where the pressure on public space is intensifying every year. Cities are growing. More people are arriving. Streets are getting busier. And the informal economy, far from shrinking, continues to expand. The question of how to manage shared public space in this context is not just a Kolkata problem. It is an India problem. And it does not have an easy answer. But it does have better and worse answers, and the difference between them lies in careful, evidence-based planning.

1.2 Problem Statement

The footpath is public infrastructure. It is built and maintained with public funds, for the benefit of everyone who uses the city. Its function, according to every planning standard and guideline in India, is to provide a safe, continuous, and accessible corridor for pedestrians. The National Urban Transport Policy 2006 specifies a minimum unobstructed pedestrian walking width of 1.8 metres on all commercial streets. The Urban Street Design Guidelines produced under the Smart Cities Mission make similar provisions. These are not aspirational numbers. They are the minimum required for two adults to walk side by side without stepping into each other.

At the market streets studied in this thesis, this standard is not being met. Not occasionally. Not during some particularly busy festival period. Every day, during almost every hour of the day, the effective pedestrian walking width at the study locations is less than one metre. In the worst case, it is less than half a metre. This means two people cannot walk alongside each other. It means a person with a pram or a wheelchair cannot use the footpath at all. It means pedestrians are being systematically pushed off the pavement and onto the carriageway, into the path of vehicles, simply in order to get from one point to another.

The cause of this situation is well known and not difficult to see. Street vendors have occupied the edges of the footpath with their structures and carts. In some cases, fixed stalls extend more than two metres in from the building face. In other cases, semi-mobile food carts appear in the afternoon and block what little corridor remains. The situation is not static. It changes through the day. But at peak hours, the footpath is, for practical purposes, a market floor rather than a walking corridor.

This would be difficult enough to address if it were simply a matter of physical space. But the problem is more complicated than that, for two reasons. First, the vendors who occupy this space are not criminals or encroachers in the simple sense of the word. They are workers trying to earn a living. Many of them have been at the same location for years or even decades. They have built up a customer base, a social network, and a territorial understanding of who occupies which stretch of the pavement. Their presence is economically rational. They are at that specific spot because that is where the customers are. Move them somewhere else, and the customers will not follow.

Second, and even more critically, the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act of 2014 gives these vendors a legal right to vend in public spaces. This Act was passed by the Parliament of India after decades of advocacy. It recognises street vending as a constitutionally protected livelihood activity. It mandates that every city must designate specific vending zones for vendors, register them, and provide them with a Certificate of Vending that establishes their legal right to occupy a specific location. It prohibits eviction without the prior provision of an alternative vending space.

The problem, then, is this. Vendors have a legal right to vend. Pedestrians have a right to a walkable footpath. Both rights exist. Both are protected by law. But neither right is actually being implemented in a way that allows both to coexist. No vending zones have been demarcated at the study sites. No certificates of vending have been issued. The Town Vending Committee, which the Act mandates as the institutional body responsible for managing all of this, exists on paper but has no active spatial planning role. The Kolkata Municipal Corporation, which is responsible for implementation, conducts periodic clearance drives that temporarily remove vendors, who return to the same locations within days, because nothing has changed in the underlying spatial conditions.

The result is a situation that is genuinely unfair to both groups. Vendors are working without legal protection, living under the constant fear of eviction. Pedestrians are walking on roads instead of footpaths, at risk from vehicles, with no institutional mechanism to enforce their right to a clear walkway. Both groups are being failed by the planning system. And that planning system, despite having a perfectly adequate legal framework in the Street Vendors Act 2014, has not taken the steps necessary to implement it spatially.

This is the problem that this thesis is trying to address. Not just describe, but actually engage with, measure, and propose a way forward for.

1.3 Need for the Study

The conflict between vendors and pedestrians on market streets has been going on for a very long time. Why, then, does it still need to be studied? The honest answer is that it has not been studied in the right way. Most of the existing work on street vending in India is either economic in nature, asking how much vendors earn and how their incomes are affected by regulation and eviction, or social in nature, asking how vending communities are organised and what role they play in the urban fabric. Very little of the existing work approaches the problem from a spatial planning perspective. Very few studies actually measure what is happening on the street, quantify the conflict, and try to understand it as a planning and design problem that can be addressed with planning and design tools.

This study exists because that gap in the literature needs to be filled. A planner looking at market streets in Kolkata cannot rely on existing research to tell them how much of the footpath is occupied by vendors at different times of day, how this affects pedestrian behaviour, what the road overflow percentages are, and how these numbers change from one type of street morphology to another. That data simply does not exist in the published literature. This thesis generates it through primary survey work, and in doing so, it provides a foundation for evidence-based planning intervention.

1.3.1 The Knowledge Gap

Research on street vending and pedestrian movement in India has, by and large, been conducted in separate silos. Studies of vendors look at their numbers, their incomes, their products, and their spatial organisation. Studies of pedestrian movement look at footpath conditions, walkability indices, and level of service. Almost no study has tried to look at both simultaneously, in the same location, with the explicit goal of understanding the spatial conflict between them. This thesis tries to do exactly that. It brings vendor behaviour and pedestrian movement data together in the same analytical frame.

1.3.2 The Planning Practice Gap

Indian cities lack planning tools that are appropriate for market streets. The design standards that exist were largely developed for contexts where vendors are marginal or absent. They do not account for the reality that in most Indian commercial streets, vendors are central to the street's economic life and cannot simply be removed. There is an urgent need for planning frameworks that accept the presence of vendors as a given and ask how streets can be designed to accommodate both vendors and pedestrians within the same physical corridor. This thesis attempts to develop the conceptual foundation for such a framework.

1.3.3 The Implementation Gap

The Street Vendors Act 2014 was passed eleven years ago. It contains clear provisions for vending zone demarcation, vendor registration, and institutional governance through Town Vending Committees. These provisions, if implemented, would go a long way toward resolving the conflict studied in this thesis. But

implementation has been deeply inadequate. This study is needed partly to document this gap and to generate the kind of site-specific evidence that can inform and motivate better implementation.

1.3.4 The Moral Case

Beyond the analytical justifications, there is a simple human reason why this study is needed. The vendors who work on market streets in Kolkata are doing so because they have no other option. The footpath is their workplace. For many of them, it is the only way they can support their families. At the same time, the pedestrians who try to walk along those streets deserve a safe and usable path. Both groups deserve better than what they currently have. A planner who takes both groups seriously, and tries to find a way to make the street work for both, is doing what the profession is supposed to do: improving people's lives through better use of the built environment.

1.4 Research Gap

A careful reading of the available literature on street vending and pedestrian movement reveals several important gaps, each of which this thesis directly addresses.

The first gap is the absence of simultaneous spatial measurement of vendor occupation and pedestrian movement. Studies that exist tend to do one or the other. They either map where vendors are, or they count pedestrians. Very few do both together, at the same locations, at the same times. Without both datasets, it is impossible to understand the causal relationship between vendor presence and pedestrian behaviour. This thesis conducts a combined survey covering both.

The second gap is the absence of temporal analysis. Most existing surveys of vendor occupation are conducted as a snapshot at one point in time. They do not capture how the situation changes across a working day. Peak hours look very different from off-peak hours. The morning rush is different from the afternoon lull. The evening peak, when both vendor activity and pedestrian footfall are simultaneously highest, is the most critical period from a conflict perspective but is the least well documented. This thesis conducts a seven hour continuous survey, from eleven in the morning to six in the evening, to capture this temporal dimension properly.

The third gap is the absence of morphological analysis. Not all market streets are the same. A wide arterial with a planned footpath of three metres behaves very differently from a narrow perimeter lane with a right of way of six metres. How the width of the street, the configuration of nodes and intersections, and the arrangement of buildings on either side affect the severity of conflict is a question that has barely been studied. This thesis compares sites with different morphological characteristics, and within each site, multiple spots with different configurations, to begin answering this question.

The fourth gap is what might be called the neutrality gap. Most research on vendor-pedestrian conflict implicitly or explicitly takes a side. Either it advocates for vendor rights and downplays the inconvenience to pedestrians, or it advocates for pedestrian mobility and treats vendors as the problem to be solved. A genuinely neutral assessment that maps the claims of both groups, identifies where they are compatible and where they are not, and proposes solutions that work for both, is rare in the existing literature. This thesis attempts this kind of neutral assessment as its primary analytical stance.

The fifth gap is the gap between policy and practice. There is a reasonable body of literature on the Street Vendors Act 2014 as a piece of legislation. But very few studies have looked at what is actually happening on the ground in specific locations, compared it to what the Act mandates, and documented the gap in systematic detail. This thesis does this for the market street locations studied in Kolkata.

Table 1.1: Summary of Research Gaps Identified from Existing Literature

Research Gap	What Existing Literature Does	What This Thesis Contributes
No combined vendor and pedestrian spatial measurement	Studies vendors or pedestrians separately	Combined simultaneous measurement at all study spots
No temporal analysis across the working day	Snapshot surveys at one time of day	Seven hour continuous survey from 11am to 6pm

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS

No morphological comparison	Single site studies without comparing street types	Sites with contrasting morphologies compared
No neutral stakeholder framework	Advocacy either for vendors or for pedestrians	Balanced pros and cons analysis of both groups
No policy to ground reality gap analysis	Legal analysis of Street Vendors Act 2014 in isolation	Site specific documentation of implementation gaps

Source: *Street Vendors Act 2014*

1.5 Aim of the Study

To examine how the daily spatial occupation of market streets by vendors creates conflict with pedestrian mobility, and to formulate conflict-responsive planning strategies that integrate vendor livelihoods with pedestrian movement, without resorting to eviction or displacement.

The aim reflects a fundamental commitment to treating both vendors and pedestrians as legitimate users of the street. Neither group is cast as the problem. Both are cast as stakeholders with rights that the planning system is currently failing to protect. The aim of this study is to understand the conflict well enough to propose something better.

1.6 Objectives of the Study

The study is organised around four specific objectives. Each one addresses a different dimension of the conflict.

1. To identify spatial zones of conflict between pedestrian movement and street vending activities within selected market streets.
2. To examine how different vending typologies, namely fixed vendors, semi-mobile vendors, and mobile vendors, influence pedestrian flow and obstruction patterns.

3. To assess how street morphology, including width, edges, and nodes, intensifies or distributes spatial conflict.
4. To evaluate temporal variations in conflict intensity based on peak and off-peak street usage.

The four objectives together produce a complete picture of the conflict: where it happens, what kind of vending causes it, how the physical structure of the street shapes it, and when it is at its worst. Together they provide the evidential foundation for the planning proposals developed in the final chapter.

1.7 Research Questions

The following research questions guide the data collection and analysis of this study.

- Where exactly do vendor and pedestrian conflicts cluster within the study streets, and what spatial characteristics define those conflict zones?
- How does vendor typology, whether fixed, semi-mobile, or mobile, shape the pattern of pedestrian obstruction and road overflow at each survey location?
- In what ways does the physical structure of the street, particularly its width, the nature of its nodes and intersections, and the arrangement of its edges, determine how severe the conflict becomes?
- At what times of day does pedestrian and vendor conflict reach its peak intensity, and what does this temporal pattern suggest about the kind of planning interventions that are most likely to work?
- Is there a way to plan the same street so that vendors can do their work and pedestrians can walk through safely, without displacing either group?

1.8 Scope of the Study

1.8.1 Spatial Scope

The study is spatially bounded to commercial market street locations in Kolkata. At each location, survey spots were selected for detailed primary data collection. The spatial analysis covers the footpath, the vendor occupation zone, and the carriageway at each spot, focusing on the right of way cross-section as the primary unit of spatial

analysis. The study does not extend to the interiors of shops or formal market buildings, and does not cover the entire lengths of the market streets studied.

1.8.2 Thematic Scope

The study covers four intersecting themes: the spatial occupation patterns of street vendors; pedestrian movement behaviour and flow; street morphology as a variable that shapes conflict intensity; and the regulatory framework governing vendor and pedestrian relations, with particular focus on the Street Vendors Act 2014. The study does not cover vendor economics, vendor income levels, or the social history of the vendor communities at the study sites.

1.8.3 Temporal Scope

Primary survey data was collected across a seven-hour window from eleven in the morning to six in the evening, on a regular weekday, to capture both the peak and the off-peak conditions of a typical commercial market street day.

1.8.4 Methodological Scope

The study combines quantitative primary data, specifically pedestrian movement counts, road overflow percentages, and standing-in-shops counts, with qualitative field observation covering vendor behaviour and pedestrian adaptation strategies. Secondary data includes literature review, policy analysis, and case study comparison.

1.9 Study Methodology

The methodology for this study is designed to generate both quantitative and qualitative data about vendor and pedestrian conflict in a systematic and replicable way. It is organised around four phases.

1.9.1 Primary Data Collection

Primary data forms the core of this study. It was collected through two purpose-designed survey instruments, administered simultaneously at multiple survey spots across the study sites in Kolkata.

a) Pedestrian Movement Count Survey

At each survey spot, pedestrians were counted by direction (right to left and left to right) and by mode (footpath user or road user, meaning those overflowing onto the carriageway). This counting was done for each of seven consecutive one-hour slots between eleven in the morning and six in the evening. The key derived indicator from this survey is the road overflow percentage: the share of total pedestrians at each location and each hour who were observed using the carriageway rather than the footpath. This percentage is used as the primary proxy for conflict intensity throughout the analysis.

b) Standing-in-Front-of-Shops Survey

Simultaneously with the movement count, a separate count was maintained of persons standing stationary in front of commercial establishments within the footpath zone. This includes people who are browsing, transacting, or waiting. High standing counts at the same hours as high road overflow indicate a compounding conflict: the footpath is simultaneously blocked by stationary persons and failing to serve through-pedestrians. This survey was conducted at all survey spots across all seven hours.

c) Field Observation

Alongside the quantitative surveys, structured qualitative observations were recorded during each survey slot. These observations cover vendor spatial behaviour, how vendors respond to pedestrians and enforcement personnel, pedestrian adaptation strategies such as detours, reversals, and road use, and any visible friction or confrontation between the two groups.

1.9.2 Secondary Data Collection

Secondary data for this study is drawn from three categories of sources. First, academic and policy literature on street vending, pedestrian movement, spatial conflict, and urban planning is used to establish the conceptual and analytical framework. This includes published research on vendor typologies, walkability, informal economies, and shared public space. Second, policy and legislative documents are used to establish the normative and regulatory baseline, including national-level guidelines on pedestrian infrastructure, urban street design, and the governance of street vending. Third, comparative case study material from other cities, both within India and internationally, is drawn upon to identify planning

precedents and design lessons relevant to the study context. The specific sources and case studies reviewed are discussed in detail in Chapter Two.

1.9.3 Tools and Techniques Used

The tools and techniques used in this study are summarised in the following table.

Table 1.2: Tools and Techniques Used in the Study

Objective	Data Required	Method	Technique or Tool
O1: Identify conflict zones	Pedestrian counts, vendor location, footpath width	Movement count survey, field measurement	Road overflow percentage, spatial mapping
O2: Examine typology impact	Vendor classification, occupation depth, pedestrian detour patterns	Field observation, vendor type mapping	Pattern classification, comparative description
O3: Assess morphology role	Street width, node type, edge conditions	Field measurement, morphological observation	Cross-section analysis, conflict intensity rating
O4: Evaluate temporal variation	Hourly pedestrian counts across seven hour window	Continuous count survey from 11am to 6pm	Temporal conflict matrix, comparative bar charts

Source: Research Design, 2025

1.9.4 The Street Vendors Act 2014: The Legal Framework

Any study that looks at vendor and pedestrian conflict in an Indian city must engage seriously with the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014. This Act is not just a policy backdrop. It is the primary legal mechanism through which the conflict studied in this thesis is supposed to be managed. Understanding it in detail is necessary both for the analysis in Chapter Four and for the proposals in Chapter Five.

a) Background and Purpose

Before 2014, street vendors in India had no legal protection. They could be evicted from any public space at any time by any municipal officer or police constable. They had no right to a designated location. They had no right to prior notice before eviction. They had no right to alternative accommodation after eviction. Their entire existence on the street was informal and vulnerable.

The Street Vendors Act 2014 was the result of decades of advocacy by vendor unions and civil society organisations across the country. It rests on the constitutional guarantee of the right to livelihood under Article 21 of the Constitution of India, and the right to practise any occupation under Article 19(1)(g). The Supreme Court of India, in several judgments over the years, had affirmed that street vending is a legitimate form of livelihood that cannot be arbitrarily suppressed. The Act translates these constitutional and judicial principles into a statutory framework.

The Act has two stated goals. The first is to protect the livelihoods of street vendors. The second is to regulate street vending in a way that does not obstruct the rights of other users of public space, including pedestrians. Both goals are relevant to this thesis. The protection of vendors and the protection of pedestrians are both embedded in the Act. They are supposed to be achieved together, not one at the expense of the other.

b) Key Provisions of the Act

Section 2(1)(a): Classification of Vendors. The Act classifies street vendors into three types. Stationary vendors are those who vend from a fixed location. Mobile vendors are those who move from place to place. Itinerant vendors are those who vend intermittently rather than continuously. This classification is directly relevant to the typology-based analysis in this thesis. Each type of vendor has a different spatial footprint and a different relationship with pedestrian movement. Planning responses that treat all three types identically are unlikely to work well.

Section 3: Right to Vend. The Act establishes that every street vendor has the right to vend in public spaces, subject to the terms and conditions specified by the Town Vending Committee. This is a positive right, not merely a privilege. It means that

evicting a vendor without due process is a violation of the Act, not just an administrative inconvenience.

Section 7: Town Vending Committees. The Act mandates the establishment of a Town Vending Committee in every city. The TVC is a multi-stakeholder body that must include representatives of vendors, including at least forty percent women vendors, as well as representatives of the local body, the planning authority, the traffic police, market associations, and resident welfare associations. The TVC is responsible for conducting surveys of vendors, issuing Certificates of Vending, demarcating vending zones, and resolving disputes. At the study sites in Kolkata, a TVC exists under the Kolkata Municipal Corporation. However, field consultation and observation found no evidence of it playing an active spatial planning role at the study locations.

Section 10: Survey of Street Vendors. The Act requires the TVC to conduct a survey of all vendors in the city every five years. The survey must record each vendor's name, the nature of their goods, and the location at which they vend. The results of the survey determine who gets a Certificate of Vending and who does not. Without this survey being conducted and kept current, the entire registration and zone allocation system cannot function. At the study sites, no updated vendor survey appears to have been conducted in recent years.

Section 21 and Section 22: Vending Zones. These sections are the most directly relevant to the conflict studied in this thesis. Section 21 requires the local body to identify vending zones in every street and public space. Section 22 requires the local body to demarcate these zones physically, ensuring that a minimum unobstructed pedestrian corridor is maintained alongside the vendor space. The Act specifies that no vendor may operate outside a demarcated zone, and that the local body must take action against vendors in non-designated areas. At the study sites, no vending zones have been demarcated. This is a direct statutory violation that has been in effect since the Act was passed in 2014.

Section 23: Certificate of Vending. Every vendor who is found in the survey and allocated a vending zone must be issued a Certificate of Vending. This certificate specifies the vendor's name, their goods, and most importantly, the specific location at which they are permitted to vend. The certificate transforms the vendor's informal

territorial claim into a legally recognised spatial right. It also makes enforcement more rational: a vendor with a certificate operating in their designated zone is exercising their legal right, and cannot be evicted. A vendor without a certificate, or operating outside their designated zone, can be asked to comply with the rules. No such certificates are in use at the study sites.

Section 36: Prohibition on Eviction Without Rehabilitation. This section is unambiguous. No street vendor may be evicted or relocated until and unless an alternative vending space has been provided to them. Every eviction that takes place without offering an alternative is a violation of this section. The Kolkata Municipal Corporation's periodic clearance drives at market streets, conducted without offering alternative vending space, are, by the plain reading of this section, unlawful. This is directly relevant to the eviction and return cycle documented in this thesis, where vendors removed from a location return to it within days, because nothing has changed in the underlying spatial conditions.

c) The Town Vending Committee: Structure and Role

Because the Town Vending Committee is so central to the implementation of the Act, it is worth describing it in more detail. Under Section 7, the TVC must be constituted in every urban local body. Its composition must ensure meaningful representation of vendors, and it must be chaired by a senior official of the local body. The TVC has several key functions. It must conduct the vendor survey. It must decide which vendors receive Certificates of Vending. It must demarcate vending zones in consultation with planning authorities and traffic police. It must resolve disputes between vendors and local bodies. And it must make recommendations on relocation only where absolutely necessary and only where alternative space has been identified.

The TVC is, in design, exactly the kind of institutional body that is needed to manage vendor and pedestrian conflict in Indian cities. It brings together vendors, planners, traffic authorities, and residents in a single forum. It has the statutory authority to make binding decisions on spatial allocation. It is accountable to all stakeholders, not just to the local body or to the vendors alone. If it functioned as designed, it would transform the management of market streets from an ad hoc, reactive, and often violent process of clearance and re-occupation into an ordered, participatory, and legally grounded system of spatial governance.

The tragedy is that it largely does not function as designed. In most Indian cities, including Kolkata, the TVC has been constituted as a formal requirement, but it does not hold regular meetings, it does not conduct surveys, it does not demarcate zones, and it does not exercise its authority over spatial allocation. The gap between the TVC as the Act envisions it and the TVC as it actually operates is one of the central institutional failures that this thesis documents and that its proposals attempt to address.

d) KMC Town Vending Committee: Minutes of Meetings and Institutional Actions

The Kolkata Municipal Corporation has constituted a Town Vending Committee under the West Bengal Urban Street Vending (Protection of Livelihood and Regulation of Street Vending) Rules, 2018, which operationalise the parent Act at the state level. The TVC publishes its Minutes of Meetings on the official KMC website (www.kmcgov.in), and these records provide a direct institutional record of what has been decided, and what has not.

The TVC meeting for which official minutes are publicly accessible on the KMC website was held on 17 May 2024. A review of the TVC's documented actions reveals a pattern of incremental but incomplete progress. In January 2024, the TVC issued an official notification (No. MS/591/2023-24, dated 20 January 2024) formally proposing 1,892 streets across KMC wards for designation as No Vending Zones, and invited public objections and suggestions within one month. This was a significant step: it represents the first formal attempt by the KMC TVC to spatially demarcate the city's vending geography in a systematic and publicly consultative manner. Citizens and affected parties were asked to send recommendations to the Chairman, Town Vending Committee, at 5 S.N. Banerjee Road, Kolkata.

Prior to the Durga Puja festival of 2024, the KMC completed a combined physical and digital survey of hawkers across its jurisdiction. Over 50,000 hawkers were registered in this survey, with their locations geo-tagged and their Aadhaar and PAN card details recorded. Of these, approximately 40,000 were found to be operating within their designated spaces according to existing rules. However, around 14,000 hawkers were found to have no designated spot and were encroaching on pedestrian space. The survey findings were submitted to Mayor Firhad Hakim ahead of the

festival period, along with a report on the number of hawkers operating in non-hawking zones.

The TVC has also documented a key enforcement decision. In August 2023, the Mayor-in-Council (MMIC) approved a Standard Operating Procedure that allows KMC officers and the police to take immediate action against hawkers who are found flouting the rules, without waiting for the TVC to deliberate first. The TVC Chairman, Debasish Kumar, who is also the MMIC (Parks and Gardens), confirmed that TVC discussion on such cases may follow the enforcement action rather than precede it. This decision was taken in response to a significant increase in complaints from residents and pedestrians about hawker encroachments blocking footpaths, particularly ahead of festivals. The TVC has also established a spatial rule that hawkers may occupy up to one-third of the footpath width and must not encroach onto the main carriageway, though this rule continues to be widely violated.

These TVC actions, taken together, reveal an institution that is beginning to engage with its statutory responsibilities more actively than in the years immediately following the Act's passage, but that is still far from full implementation. The last major hawker survey before 2024 was conducted in 2012, which means the registration and vending zone system has operated on severely outdated data for over a decade. The 14,000 hawkers found to be without designated spots and encroaching on pedestrian space are precisely the category of vendor whose spatial status the Act was designed to regularise. The KMC TVC's ongoing efforts to frame a new hawker policy, driven in part by Chief Minister Mamata Banerjee's instruction to regulate hawkers and prevent pedestrian accidents, represent a window of institutional opportunity that is directly relevant to the planning proposals in Chapter Five of this thesis.

Table 1.3: Street Vendors Act 2014: Key Provisions and Ground Reality at Study Sites

Section	What the Act Mandates	Ground Reality at Study Sites	Relevance to This Thesis
Section 2(1)(a)	Classifies vendors as stationary, mobile, and itinerant	No typology-based allocation. All vendor types coexist in the same unregulated space	Foundation for typology-sensitive vendor allocation proposals
Section 7	Mandates Town Vending Committee for participatory governance	TVC constituted but inactive. No spatial planning role at study sites	Demonstrates the institutional gap that proposals must close
Section 10	Vendor survey every five years to record names, goods, and locations	No updated survey conducted at study sites in recent years	Without survey, registration and zone allocation cannot begin
Sections 21 and 22	Mandatory demarcation of vending zones in all streets	No vending zones demarcated at the study locations	Most critical statutory gap. Primary legal basis for spatial proposals
Section 23	Certificate of Vending with location specificity for every registered vendor	No certificates issued. All occupation remains informal	Basis for the vendor registration and location certificate proposal
Section 36	No eviction without prior alternative space allocation	KMC clearance drives conducted without alternative space. Vendors return within days	Explains eviction and return cycle. Defines conditions for relocation

Source: Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014;
Primary Field Observation, 2025

e) Related National Policies

National Urban Transport Policy 2006. The NUTP was one of the first national policies to explicitly prioritise pedestrian mobility in Indian cities. It established a hierarchy of street users that places pedestrians and cyclists above public transport and private vehicles. It specified minimum pedestrian corridor widths of 1.8 metres for commercial streets. While it does not address street vending directly, it provides the normative baseline against which current footpath conditions at the study sites can be measured and found wanting.

AMRUT 2.0. The Atal Mission for Rejuvenation and Urban Transformation provides central government funding for urban infrastructure including pedestrian streetscape improvements. AMRUT 2.0, launched in 2021, includes footpath upgrades and pedestrian-friendly street redesign as eligible expenditure. This is relevant because some of the physical proposals in Chapter Five, including footpath widening and node redesign, could be funded through AMRUT. However, AMRUT does not require that streetscape upgrades be co-designed with vendor spatial allocation plans, which means improvements can be quickly undone when vendors re-occupy upgraded footpaths.

Smart Cities Mission Street Design Guidelines. These guidelines, drawing on international best practice, recommend shared street approaches in dense commercial areas where vendors, pedestrians, and limited vehicular traffic coexist through design rather than segregation. They are aspirational rather than mandatory, and they do not connect explicitly to the Street Vendors Act 2014. The gap between the design guidance and the regulatory framework is a structural weakness in the national policy landscape.

1.10 Study Area: Introduction

The study is set in Kolkata, the capital of the state of West Bengal in eastern India. Kolkata is the third largest city in India by population, with a metropolitan area population of approximately 14.8 million as of the 2011 census. It is one of the oldest planned cities in South Asia, with a street network that has its roots in colonial-era planning from the late eighteenth century. Its history as a trading and commercial city has shaped its spatial character in ways that are still visible today.

Kolkata is a city that is unusually dependent on walking and public transport. Compared to cities of similar size in India, it has lower rates of private vehicle ownership. A large share of its population uses buses, the metro rail, trams, and above all, their own feet, as their primary mode of daily travel. This makes the condition of pedestrian infrastructure critically important to how the city functions. A street where the footpath does not work is not a minor inconvenience in Kolkata. It is a serious failure of everyday mobility.

At the same time, Kolkata has one of the most deeply embedded street vending economies in India. Street vending has been part of the city's commercial life since the colonial period. The characteristic Kolkata market street, with vendors on both sides of the footpath, shops behind them, and a narrow lane of traffic in between, is found in almost every neighbourhood of the city. In some areas, like the one studied in this thesis, the vending has been going on for decades, and it has become so much a part of the street's identity that the street would not be recognisable without it.

The market streets of Kolkata were selected for this study on the basis of the clarity and intensity with which the vendor and pedestrian conflict is visible there. The selected locations are among the busiest and most commercially active market streets in Kolkata, and they show the conflict in a clear and measurable form. They are described in detail in Chapter Three. This section provides only the introductory context needed to understand why Kolkata was chosen as the study setting.

A more detailed description of the study sites, including their historical evolution, morphological characteristics, land use, existing vendor distribution, and pedestrian patterns, is provided in Chapter Three of this thesis.

1.11 Historical Evolution of Street Vending in Kolkata

To understand the conflict that exists on Kolkata's market streets today, it helps to understand how street vending in the city arrived at its current form. The history of vending in Kolkata is not a history of encroachment in any simple sense. It is a history of the gradual, socially negotiated occupation of public space by a working class whose economic options were limited and whose presence was, for a long time, informally tolerated even when it was not formally recognised.

1.11.1 The Colonial Period

Kolkata, then Calcutta, was the capital of British India from 1772 to 1911. It was a city built around trade. The East India Company, and later the British Crown, used it as the primary port and commercial hub of the subcontinent. The city's infrastructure, including its street network, was planned largely to serve the needs of colonial commerce. Large formal markets, or bazaars, were established by the colonial administration to organise the trade in food, clothing, and household goods. The most prominent of these was the covered market established in the 1870s in central Calcutta, which still stands today as one of the study sites of this thesis.

Alongside these formal markets, a parallel informal economy of street vendors existed from the very beginning. Vendors selling food, flowers, and small goods were a constant presence on Calcutta's streets throughout the colonial period. Colonial records describe them variously as hawkers, peddlers, and street traders. They were tolerated where they were useful and removed when they were inconvenient. There was no formal legal framework governing their presence.

1.11.2 Post-Independence Growth

After independence in 1947, Kolkata underwent dramatic demographic and economic change. The partition of Bengal in 1947, the communal violence that followed, and the subsequent decades of political and economic turbulence in Bengal brought large numbers of refugees and migrants into the city. Many of them, lacking formal employment options, turned to street vending as a means of survival. The number of vendors in Kolkata grew rapidly through the 1950s and 1960s.

At the same time, the formal economy of the city stagnated. Kolkata lost its status as India's premier industrial city to Bombay and later to Delhi. Manufacturing declined. Large formal employers closed or shed workers. The informal economy, including street vending, absorbed much of this displaced labour. By the 1970s and 1980s, street vending had become a structural feature of Kolkata's economy, not a marginal one.

During this period, vendors began to establish themselves in the locations they occupy today. The market streets of south Kolkata, in particular, developed their characteristic form: a street with shops on either side, and vendors occupying the footpath in front of the shops, serving a similar range of goods at lower prices. The

shops and the vendors existed in an informal symbiosis. The vendors brought customers to the area, and the shops benefited from the increased footfall. At the same time, the vendors competed with the shops for those very customers, creating a commercial tension that has never been fully resolved.

1.11.3 The Legal Vacuum Before 2014

From independence until 2014, street vendors in Kolkata, as in most Indian cities, operated in a legal vacuum. They had no formal right to the space they occupied. Municipal by-laws in most cities, including Kolkata, technically prohibited vending on footpaths. But these laws were selectively enforced. Vendors paid informal fees to police and municipal officers to be allowed to operate. Periodic clearance drives were conducted, especially when VIPs were visiting or when a formal complaint had been made, but they were not systematic and vendors always returned.

This informal arrangement produced a particular kind of stability. Vendors who had been at a location for years or decades were not easily removed. They had invested in their structures, built up their customer bases, and established their territorial claims through social convention. The police and the municipality knew who was where. An informal order existed, enforced not by law but by social negotiation, money, and the sheer weight of entrenched practice.

But this informal stability had a cost. Because vendors had no legal rights, they also had no legal responsibilities. There was no mechanism to require them to maintain a minimum pedestrian corridor. There was no mechanism to prevent new vendors from adding to the occupation of already congested footpaths. There was no mechanism for pedestrians to complain, or for planners to intervene. The conflict simply intensified every year, as the number of vendors grew and the pressure on the footpath increased.

1.11.4 The Street Vendors Act 2014 and Its Aftermath

The passage of the Street Vendors Act 2014 represented, at least in principle, a fundamental change. For the first time, vendors had a positive legal right to vend in public spaces, subject to regulation. For the first time, a mechanism existed, in the form of the Town Vending Committee, through which their spatial allocation could be

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planned in a participatory way. For the first time, there was a statutory obligation to demarcate vending zones and to issue certificates of vending.

In Kolkata, the Act was notified and a Town Vending Committee was constituted under the Kolkata Municipal Corporation. But implementation has been slow and incomplete. No comprehensive vendor survey has been completed. No vending zones have been demarcated at the study sites. No certificates of vending have been issued. The TVC meets irregularly and does not exercise its spatial planning mandate.

The effect of the Act is still minimal. As laws change, vendors continue to work on footpaths, even after going through KMC drives, coming back again. The spatial reality, therefore, does not change either. This research project examines the gap that continues to exist between the new law and the ground reality.

Table 1.4: Timeline of Street Vending in Kolkata: Key Historical Milestones

Period	Key Developments
1870s to 1947	Colonial period. Formal markets established. Street vendors tolerated alongside formal trade. No legal framework governing vendor presence.
1947 to 1960s	Post-independence period. Partition refugees and migrants swell the vendor population. Street vending becomes structural, not marginal.
1970s to 1990s	Economic stagnation. Informal economy grows. Market streets develop their characteristic form with vendors on footpath edges. Informal territorial conventions established.
1990s to 2013	Vendor numbers continue to grow. Periodic municipal clearance drives. Vendors return each time. Legal vacuum continues. No formal rights or protections.
2014	Street Vendors Act passed. Legal right to vend established. Town Vending Committees mandated. Vending zone demarcation required.
2014 to 2025	Implementation remains incomplete. No vendor surveys completed. No zones demarcated at study sites. TVC constituted but inactive. Ground conditions largely unchanged.

Source: KMC Records; Street Vendors Act 2014

1.12 Limitations of the Study

1.12.1 Survey Time Window: The primary survey covers seven hours and does not capture early morning, late evening, or weekend conditions at the study sites. Hawker activity and pedestrian footfall are known to vary significantly across different times of day and days of the week. As a result, the observational data collected may not fully represent the complete temporal dynamics of street vending at the selected locations. A more comprehensive time-series survey spanning multiple days and time slots is recommended for future research to address this gap.

1.12.2 No Vendor or Pedestrian Interviews: Qualitative findings in this study are based on structured observation only, and vendor and pedestrian perspectives have not been captured through direct interviews or questionnaires. This limits the depth of understanding regarding the lived experiences, preferences, grievances, and aspirations of the primary stakeholders involved. The absence of first-hand accounts means that certain socio-cultural and behavioural dimensions of street vending may not be fully reflected in the analysis. Conducting interviews and surveys with vendors and pedestrians is planned for the subsequent research phase.

1.12.3 Vendor Income Data Not Collected: Data relating to vendor income, daily earnings, expenditure, and overall business viability were not collected as part of this study. This omission limits the economic grounding of the relocation and redesign proposals presented in Chapter Five, as the financial feasibility and impact of such interventions on vendors' livelihoods cannot be assessed. Collecting vendor income data through structured interviews or surveys is recommended in future phases to strengthen the economic dimension of the research.

1.12.4 Site-Specific Findings: The findings, observations, and proposals presented in this study are tailored to the specific physical, social, and urban conditions of the Kolkata study sites. The street vending patterns, pedestrian behaviours, and spatial characteristics observed are deeply influenced by the local context of these locations. Consequently, the conclusions and design interventions may not be directly transferable to other urban settings without significant adaptation to suit differing local conditions, regulatory frameworks, and cultural contexts.

1.12.5 No Cost Estimation for Proposals: The proposals outlined in this study do not include financial or budgetary assessments. The cost implications of implementing the proposed interventions - such as infrastructure development, vendor relocation, or spatial redesign - have not been estimated. A detailed cost analysis is beyond the scope of this thesis and is recommended as a direction for future research or professional feasibility studies.

1.13 Conclusion

The conflict between street vendors and pedestrians on market streets in Indian cities is not a new problem. It is not a simple problem. And, despite what many people assume, it is not a problem without a solution. What it is, is a problem that has been consistently approached from the wrong angle. It has been treated as a law and order problem when it is actually a planning problem. It has been treated as a vendor management problem when it is actually a shared space design problem. And it has been treated as something that each side must simply tolerate, when in fact it is something that both sides can be relieved from, if the planning system takes it seriously.

This thesis takes it seriously. It starts from the position that both vendors and pedestrians have legitimate rights on market streets. It uses primary data to understand exactly what is happening on those streets, in quantified spatial and temporal terms. It applies the framework of the Street Vendors Act 2014 to understand what the law requires and where it is falling short. And it works toward proposals that are grounded in evidence, realistic about implementation constraints, and fair to both groups.

The study is an attempt by a student of planning to engage honestly with one of the most visible and persistent failures of Indian urban planning. The hope is that it contributes, in a small way, to a better understanding of what needs to change, and how.

The next chapter turns to the academic and policy literature that forms the intellectual foundation of this study, reviewing what researchers and planners have learned about street vending, pedestrian movement, and spatial conflict in Indian and international contexts.

1.14 Chapter Scheme

The thesis is organised into five chapters. Chapter One, which the reader has just completed, provides the background, problem statement, aim, objectives, methodology, and legislative context of the study. Chapter Two reviews the academic literature and relevant case studies on street vending, pedestrian mobility, and spatial conflict in Indian and international cities. Chapter Three describes the study sites in detail, covering their history, morphology, land use, vendor distribution, and pedestrian patterns. Chapter Four presents the primary findings of the study, analysing the survey data across the four research objectives and synthesising the findings into a spatial, temporal, and institutional picture of the conflict. Chapter Five translates these findings into planning proposals, organised around vending zone demarcation, typology-based allocation, time-based street management, morphology-responsive redesign, and the conditions for responsible relocation, each grounded in the Street Vendors Act 2014 and calibrated to the specific conditions of the study sites.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Cities in the Global South are, in a very real sense, walking cities. A large portion of their populations - particularly the urban poor - depend on walking as their primary mode of movement. They walk to work, to school, to markets, to transport nodes, and to every other destination in their daily lives. The quality of the walking environment is, for these populations, not an aesthetic preference. It is a basic condition of survival and participation in urban life.

This chapter reviews the existing body of knowledge that forms the intellectual foundation of this study. The central concern of this thesis - the spatial conflict between street vendors and pedestrians on commercial market streets in Kolkata - sits at the intersection of several fields: urban planning, informal economies, pedestrian mobility, street morphology, and the governance of shared public space. Each of these fields has developed its own body of literature over the past few decades, and this review draws from all of them.

The chapter is organised into eight sections. Section 2.2 establishes the conceptual framework, defining public space and the street as a multi-functional urban environment. Section 2.3 examines what street vending is, how vendors are classified, how they occupy space, and how their behaviour changes across the day. Section 2.4 looks at pedestrian movement and walkability, covering what walkability means, what standards apply to footpaths in India, and how pedestrian behaviour is affected by obstruction. Section 2.5 directly addresses the spatial conflict between vendors and pedestrians - what causes it, where it tends to cluster, how street morphology shapes it, and how it varies across time. Section 2.6 covers governance and regulation, focusing on global approaches and on the Street Vendors Act 2014 in particular. Section 2.7 presents case studies from Indian and international cities that have tried to manage this conflict. Section 2.8 reviews the tools and techniques that researchers have used in similar studies, so that the methodological choices in this thesis can be situated in relation to the existing practice. Section 2.9 synthesises the key findings from the literature and identifies the specific gaps that this thesis is designed to address.

It is important to note upfront what this review is not trying to do. It is not trying to summarise every paper ever written on street vending or pedestrian mobility. The literature in both areas is large and growing quickly. Instead, this review is selective and purposeful - it draws from the literature that is most directly relevant to the specific research questions driving this study, and it uses that literature to build the analytical framework that the rest of the thesis depends on.

2.2 Conceptual Framework: Street as a Shared Public Space

2.2.1 Definition and Nature of Public Space

Public space is one of those concepts that people use constantly but rarely define carefully. In everyday conversation, it usually means any space that is not privately owned - a park, a square, a road, a footpath. In planning and design literature, it means something more specific: a space that is open to all, regardless of who they are, where they come from, or how much money they have. Jan Gehl, one of the most influential writers on urban public space, described it as the space between buildings - the space where the city's social life actually happens (Gehl, 2010).

The United Nations Human Settlements Programme (UN-Habitat) defines public space as all places that are publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive. This definition is important because it encompasses not just formal public spaces like parks and plazas, but also streets, footpaths, and all the other interstitial spaces that make up the everyday fabric of urban movement. The footpath of a commercial market street in Kolkata, by this definition, is absolutely a public space - it is publicly owned, accessible in principle to all, and serves as the daily stage for an enormous range of social and economic activity.

The question of who actually controls public space, and whose interests it serves in practice, is a different and more contested matter. Lynch (1960) noted that urban residents develop strong mental maps of the public spaces of their cities - the nodes, paths, and edges that structure their daily experience of the urban environment. These mental maps are not neutral. They reflect power relations, patterns of exclusion, and the differential ability of different social groups to claim and use urban public space. The footpath vendor who has occupied a specific patch of pavement for twenty years

has a very different mental map of that space - and a very different relationship to it - than the pedestrian who passes it daily but has no territorial stake in it.

Henri Lefebvre's concept of the production of space is also useful here. Lefebvre argued that space is not just a physical container. It is produced through the actions and conflicts of the people who use it. A street does not simply exist; it is made, remade, and contested every day by the different groups who claim it (Lefebvre, 1991). This idea is deeply relevant to the market streets studied in this thesis, where the physical footpath is the same piece of infrastructure, but the space it represents is claimed and contested every hour by vendors, pedestrians, shopkeepers, and enforcement officers in very different ways.

The Project for Public Spaces (PPS), which has done extensive work evaluating and improving public spaces around the world, defines a good public space as one that has four key qualities: it is accessible, it supports activities and uses, it is comfortable and has a good image, and it is sociable - meaning it encourages people to meet and interact. By these criteria, the market streets studied in this thesis are simultaneously some of the most intensely used and some of the most poorly functioning public spaces in Kolkata. They attract enormous numbers of people. They support a remarkable diversity of economic activity. But they fail on accessibility and comfort - particularly for pedestrians, who are systematically denied safe passage.

It is equally important to note that not all public spaces function in the same way. Kevin Lynch (1960), in his foundational work on the image of the city, distinguished between different types of elements in the urban landscape - paths, edges, districts, nodes, and landmarks. Streets are paths: they are the channels along which movement occurs, and they form the connective tissue of the city's spatial structure. But paths are not just movement channels. They are also social spaces, economic spaces, and political spaces - places where the city's life is lived, contested, and negotiated every day. Understanding the street as a path in Lynch's sense means understanding it not just as infrastructure but as a social institution.

The concept of public space has also evolved in response to changes in the urban economy and governance. Increasingly, planners and scholars are recognising that the distinction between public and private space is not as clean as it once seemed. Many spaces that are technically public are effectively privatised through enforcement,

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surveillance, or design - made inhospitable to certain users while welcoming to others. The footpath of a market street in Kolkata may be technically public, but if it is so thoroughly occupied by vendors that pedestrians cannot use it, then its publicness has been effectively compromised - not by private ownership but by the unmanaged competition over use.

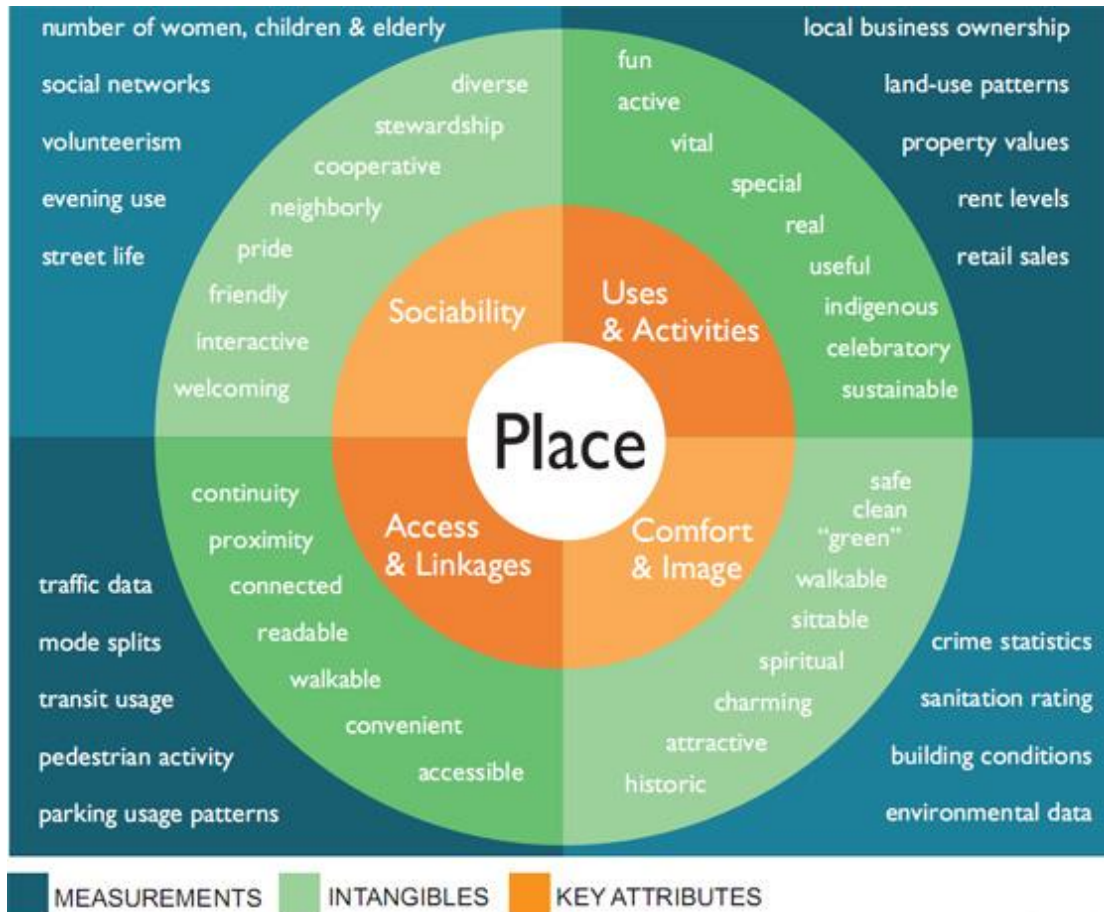


Figure 2.1: The Four Key Qualities of a Successful Public Space

Source: *Project for Public Spaces (PPS)*, www.pps.org

2.2.2 The Street as a Multi-functional Urban Space

Jane Jacobs, writing about American cities in 1961, made an argument that became the foundation of everything that followed in street-level urbanism: the street is not just a circulation corridor. It is a social and economic space that depends on the simultaneous presence of different kinds of people with different purposes. When a street only serves one function - say, moving cars - it loses the vitality that makes it a living part of the city (Jacobs, 1961).

This insight applies even more powerfully to the commercial streets of Indian cities than it did to the American streets Jacobs was writing about. In Gariahat or around New Market in Kolkata, the street simultaneously functions as a pedestrian corridor, a marketplace, a social gathering point, a public transport interchange, and a workspace. These functions are not arranged side by side in an orderly way. They are layered on top of each other, often in the same square metre of space. A footpath that is a walking corridor in the morning might be a vendor's sales floor by noon and a crowd-management problem by evening.

Sun et al. (2020) studied street spaces in Yuncheng, China, and described the relationship between vendors and pedestrians as a spatio-temporal dance - each group occupying different parts of the street at different times, with their patterns interweaving in ways that produce both conflict and a kind of informal coexistence. This temporal complexity of shared street use is one of the key ideas that this review returns to in Section 2.5.

Peimani and Kamalipour (2022) reviewed the literature on informal street vending and found that the spatial logic of vending is never random. Vendors cluster in specific locations because those locations offer the best access to customers, the most shelter, the most visibility, or the most protection from enforcement. Understanding that logic is essential before designing any intervention. A plan that ignores why vendors are where they are is a plan that will fail.

The concept of street as a multi-functional space has deep roots in the planning tradition. Jane Jacobs famously argued against the modernist urban planning orthodoxy of her time, which sought to separate land uses and create mono-functional zones. She observed that the most vibrant and safe urban streets were those where different activities - residential, commercial, civic - were mixed together, generating what she called 'eyes on the street' and a continuous rhythm of human activity throughout the day and into the evening. Her arguments, developed primarily in the North American context of the 1950s and 1960s, translate remarkably well to the reality of Indian commercial streets, where mixed use, continuous activity, and the blurring of formal and informal economies are not urban design aspirations but everyday realities.

De Certeau (1984) introduced the distinction between strategies - the spatial practices of institutions and powerful actors who design, plan, and manage urban space - and tactics - the spatial practices of ordinary people who navigate, appropriate, and resist the designed environment in their daily lives. Street vendors are, in De Certeau's terms, tactical actors par excellence. They do not design the street, but they appropriate it, transforming it through their daily practices of occupation, display, and transaction into a space that serves their own economic and social needs. Pedestrians are also tactical actors, navigating around vendor structures, spilling onto the carriageway, and finding their own ways through the contested terrain of the market street.

The concept of a 'natural surveillance' of the street - the idea that more eyes on the street means more safety - is also relevant here. Vendors, by their very presence on the footpath throughout the working day, function as informal guardians of the street. Their presence deters petty crime, provides a form of social monitoring, and creates the kind of continuous human activity that Jacobs identified as the hallmark of a safe urban street. This is why the removal of vendors through enforcement drives often has the paradoxical effect of making the street feel less safe, at least in the immediate aftermath, even as it temporarily improves pedestrian flow. Any planning framework for market streets must account for the multiple functions that vendors serve, not just their role as an obstacle to pedestrian movement.

2.2.3 Right to the Street: Vendors and Pedestrians as Co-users

The street is a public good. Its basic legal status in India, as in most countries, is that it belongs to all citizens. No single user group has an absolute claim over it. But in practice, the street is contested - different groups have different claims, different powers, and different levels of legal protection.

Patil et al. (in their review of vendor-pedestrian interactions from both the Global North and South) argue that both vendors and pedestrians are legitimate users of the street, and that the conflict between them is not inherent. It is the result of planning and governance failures - specifically, the failure to allocate space between the two groups in a clear and fair way. When no allocation has been made, each group occupies whatever space it can, and conflict results. This is precisely the situation at the study sites in this thesis.

Brown (2015) argues that street vendors, in particular, have a legitimate claim to public space that is grounded in constitutional rights to livelihood. In the Indian context, this claim has been given statutory force by the Street Vendors Act of 2014, which explicitly recognises street vending as a protected livelihood activity. But the Act also recognises the rights of pedestrians to an unobstructed walking corridor. The challenge for planners is not to choose between these rights, but to design the street in a way that makes both possible at the same time.

2.3 Street Vending: Nature, Typology, and Spatial Behaviour

2.3.1 Defining Street Vending and the Informal Economy

Street vending is one of the most visible forms of informal economic activity in cities around the world. It refers to the activity of selling goods or services from a non-permanent location in a public space - typically a street, footpath, pavement, park, or other public area. It is distinguished from formal retail by its location (public rather than private), its physical structure (temporary or semi-permanent rather than built), and its regulatory status (often operating without a formal licence or in a grey zone between legality and illegality).

Bhowmik (2005) provides one of the earliest and most comprehensive overviews of street vending in Asia, noting that it is not a marginal or residual activity. In most Asian cities, street vending is structurally embedded in the urban economy. It provides affordable goods and services to low-income populations, generates livelihoods for workers who have no access to formal employment, and animates the public spaces of the city in ways that formal retail cannot match.

In India specifically, the National Urban Livelihoods Mission estimates approximately one crore (ten million) street vendors across the country, though the actual figure is almost certainly higher. Most of them are at the lower end of the income distribution, working without job security, without social protection, and often without legal recognition. Yet they are not peripheral to the city's economy. They are, as Saha (2017) argues, embedded in the centre of it - providing daily-use goods and food to millions of urban residents at prices that formal shops cannot match.

It is worth noting that the line between formal and informal retail is not always clear in the Indian urban context. Many street vendors are, in a sense, the informal

equivalent of formal shops - selling the same goods, serving the same customers, and operating from the same locations, day after day, year after year. The difference is not in what they do but in where and how they do it: in public space rather than private premises, without a permanent structure, and without formal legal recognition. This blurring of the formal-informal boundary is itself a significant planning challenge.

Cross and Morales (2007), in their edited volume on street entrepreneurs, argue that the informal economy of street vending is deeply embedded in the cultural and social life of cities around the world. Street vendors are not economic actors who exist in isolation. They are embedded in dense networks of social relationships - with suppliers, with other vendors, with their customers, and with the political and enforcement actors who regulate their work. These social networks are not peripheral to the economics of vending. They are the economics of vending: they determine who gets access to which location, who gets warning of enforcement drives, who gets credit to restock their goods after a bad day, and who provides assistance in times of personal crisis. Planning that ignores these social networks is planning that will fail.

The informal economy of which street vending is a part has been theorised in various ways. Roy (2005) argues that informality is not simply the absence of formality - it is a mode of spatial production that is actively produced by the state through selective enforcement, deliberate ambiguity, and the creation of grey zones where formal rules technically apply but are not enforced. This is a useful frame for understanding the situation in Kolkata, where the Street Vendors Act 2014 exists and is technically in force, but has not been implemented in any meaningful spatial sense at the study locations.

2.3.2 Typology of Street Vendors (Fixed, Semi-mobile, Mobile)

Not all street vendors are the same. One of the most important insights from the literature is that the spatial behaviour of vendors varies enormously depending on their type, and that different vendor types create very different kinds of conflict with pedestrians. The Street Vendors Act 2014 itself recognises three types of vendors: stationary, mobile, and itinerant.

Stationary or fixed vendors are those who occupy a specific location on a permanent or semi-permanent basis, typically with a structure - a stall, a cart that is parked and not moved during the working day, a table, or a mat on the ground. Fixed vendors

tend to have the largest spatial footprint. They occupy the deepest portion of the footpath, often extending one to two metres in from the building face. Their structures are often elaborated over time - awnings are added, shelves are built, and the boundary between the vendor's structure and the shop behind it can become blurred. Peimani and Kamalipour (2022) note that fixed vendors also tend to be the most economically embedded - they have regular customers, established supply chains, and long-term territorial claims that are informally recognised by the community around them.

Semi-mobile vendors are those who use a cart or platform that is moved to a location at the start of the working day and parked there for several hours, then moved at the end of the day. The canonical example is the food cart - a wheeled cart that a vendor pushes to a specific spot in the morning, parks, uses for vending throughout the day, and then pushes home in the evening. Semi-mobile vendors have a smaller and less permanent spatial footprint than fixed vendors, but they are still essentially stationary during vending hours. Their impact on pedestrian movement is significant because they tend to appear at points of high footfall - junctions, near food shops, near transport nodes - precisely the places where pedestrian demand for space is highest.

Mobile vendors are those who genuinely move through the street while vending - hawkers who call out their wares as they walk, carrying their goods in a basket, on their head, or on a small rolling platform. Their impact on pedestrian movement is different in character from fixed and semi-mobile vendors. They do not create a permanent obstruction at any one spot, but they can impede the flow of pedestrians they pass through, particularly in narrow footpaths. They also tend to congregate at nodes and junctions, even if they do not stay there for long.

Widjajanti (2016), studying street vendors in Semarang, Indonesia, found that the type of vendor is closely related to the type of location they occupy. Fixed vendors tend to cluster along linear sections of the footpath, particularly in front of complementary formal shops. Semi-mobile vendors cluster at junctions and entry points to markets, where foot traffic is highest. Mobile vendors tend to circulate between these points.

The legal typology of vendors established in the Street Vendors Act 2014 - stationary, semi-stationary, and mobile - maps reasonably well onto the spatial typology described above, but there are important nuances. For planning purposes, the spatial

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typology is more directly relevant than the legal one - it is the spatial behaviour of vendors, not their legal status, that determines their impact on pedestrian movement.

In the Indian context, Jha (2018) notes that vendor typology also has important gender dimensions. Women vendors in India tend to concentrate in specific commodity niches - fresh vegetables, flowers, cooked food - and tend to use smaller, more mobile setups than men. This partly reflects differential access to capital and partly reflects differential exposure to enforcement risk. These gender dimensions of vending typology have direct implications for the design of vending zones: zones designed only for fixed stalls will not serve women vegetable vendors who need to move their goods or pack up quickly.

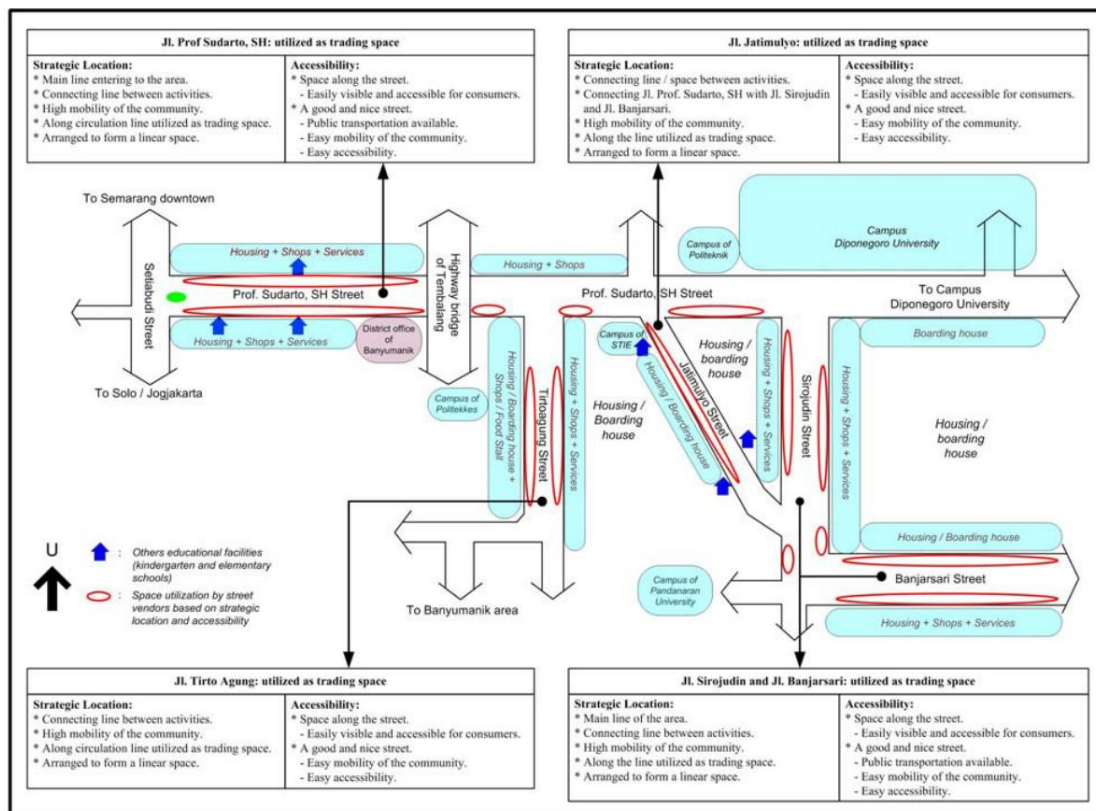


Figure 2.2: Space utilization by street vendors based on Strategic location and Accessibility in education area of Tembalang, Semarang

Source: Adapted from Widjajanti (2016)

2.3.3 Spatial Occupation Patterns of Vendors

How vendors occupy space is not random. Every experienced vendor knows which part of the footpath is most valuable, which spot gets the most foot traffic, which location is protected from rain or sunlight, and which position is safest from

enforcement. The spatial logic of vending is a rational response to the constraints and opportunities of the urban environment.

Dovey, Recio, and Pafka (2022), studying informal street vending in Manila using an assemblage approach, describe vendor occupation as a form of spatial improvisation within a field of constraints. Vendors do not simply occupy any available space. They read the urban environment - its flows, its rhythms, its edges and nodes - and position themselves where they can maximise their access to customers while minimising their exposure to enforcement. The result is a spatial pattern that appears chaotic from the outside but has its own internal logic.

Peimani and Kamalipour (2022) provide a systematic map of the spatial patterns of informal vending across different urban contexts. They identify several consistent patterns: vendors cluster at transition points (where one type of space meets another - a transport node at the edge of a market, for example); vendors occupy edge spaces (the boundaries between the footpath and the carriageway, between the footpath and the building face); and vendors gravitate toward nodes (intersections, corners, entrances to markets or transport facilities).

In the Indian context, Deore and Lathia (2019) examined streets in Ahmedabad and found that vendor occupation depth - how far vendors extend from the building face into the footpath - varies significantly with the width of the footpath. On wider footpaths, vendors extend further because there is more space available and enforcement pressure is lower. On narrower footpaths, vendors are more constrained but the impact on pedestrian movement is more severe, because even a modest occupation depth leaves pedestrians with very little usable corridor.

The concept of vendor territory - the informal but socially recognised claim that a vendor has to a specific location in the street - is one of the most important and least-studied aspects of vendor spatial behaviour. In most market streets where vending has been going on for many years, there is an elaborate and detailed informal system of territorial rights. Individual vendors know exactly where their space begins and ends. They know which spaces belong to which vendors, who has seniority, and what the norms of conduct are. These informal territorial systems are maintained through social pressure, community norms, and occasional negotiation and conflict. They are, in

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS

many ways, more effective regulators of vendor behaviour than the formal legal framework.

Sun et al. (2016), in their study of walkability and street vending in Yuncheng, note that the informal territorial system of vendors has significant implications for pedestrian movement. The territorial boundaries that vendors observe among themselves tend to create a predictable spatial pattern of vendor occupation - one that pedestrians can learn and adapt to over time. The problem arises not when vendors follow their territorial norms but when those norms place vendor territory in locations that eliminate the pedestrian walking corridor.

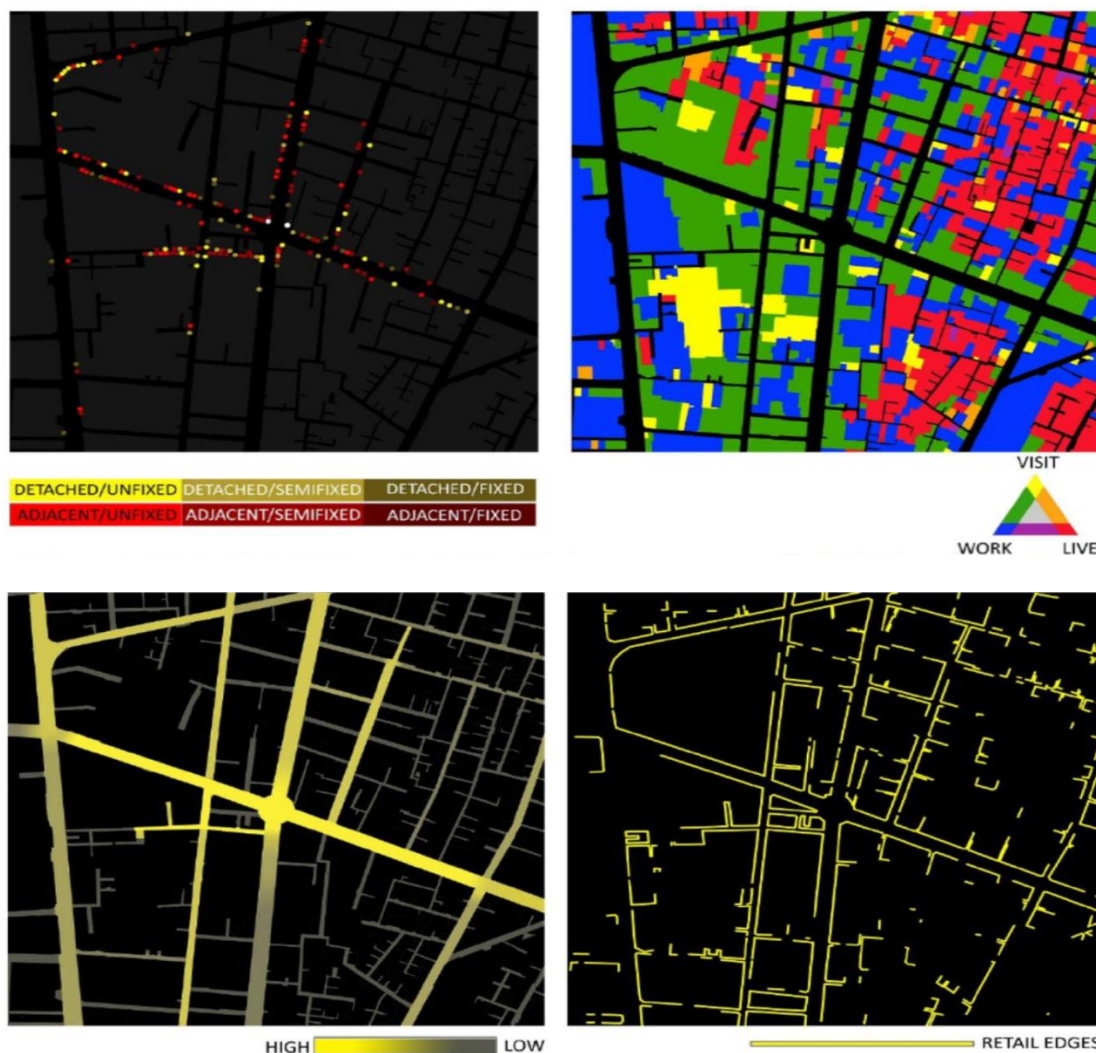


Figure 2.3: Spatial mapping of different types of informal street vending in Saadi, (top left); the midday-peak volume of pedestrian flows (bottom left); retail edges (bottom right); functional mix (top right)

Source: Peimani and Kamalipour (2022), *Journal of Urbanism*

2.3.4 Temporal Behaviour of Vendors Across the Day

One of the most important and least-studied aspects of vendor behaviour is its temporal dimension. The vendor occupation of a street at nine in the morning looks very different from what it looks like at noon, at four in the afternoon, or at seven in the evening. Understanding these temporal patterns is essential for designing interventions that actually work, because a solution calibrated to peak hours may be completely unnecessary at off-peak hours, and vice versa.

Sun et al. (2020) conducted a detailed temporal study of vendor and pedestrian interaction in Yuncheng, China, tracking how both groups used the street space across the full working day. They found a clear rhythmic pattern: vendor activity peaks in the morning (when fresh food vendors are most active) and again in the late afternoon and early evening (when the street becomes a social and commercial destination after the working day). Pedestrian activity broadly follows a similar pattern, but with a more sustained peak through the afternoon hours. The points of maximum conflict are the moments when both peaks coincide.

Sun (2022) extended this analysis using a rhythm analysis approach, drawing on Lefebvre's concept of urban rhythms. He argues that the vendor-pedestrian street is not a static space but a temporal space - its character, its conflicts, and its opportunities change across the day in rhythmic patterns that planning interventions need to account for. A plan that treats the street as if it has only one spatial configuration - the peak-hour configuration - will miss the complex temporal reality that users of the street actually experience.

Li et al. (2018), studying morning market vendors in Beijing, describe a phenomenon they call the 'urban crack at 4 a.m.' - the brief window in the early morning when informal vendors occupy spaces that are otherwise controlled or excluded during the formal working day. This temporal pattern is different from the daytime patterns studied in most research, but it illustrates the same basic principle: vendor behaviour is deeply shaped by the time dimension of urban life.

The temporal behaviour of vendors is also shaped by external factors that the planning literature has not always recognised. Weather is one such factor: in Kolkata, the pre-monsoon heat and the monsoon rains both significantly affect vendor activity levels, with vendors pulling back from exposed footpath locations and concentrating under

awnings and overhangs during extreme conditions. The timing of formal shop hours is another: vendors who depend on shop customers adjust their hours to match those of the formal shops they serve. Religious and cultural calendars also matter: vendor activity levels and spatial patterns change significantly around festivals and holidays, creating temporary peaks that may be the most intense vendor-pedestrian conflict scenarios of the year.

2.4 Pedestrian Movement and Walkability

2.4.1 Defining Walkability and Pedestrian Level of Service

Walkability is a concept that has received growing attention in urban planning and transport research over the past two decades, particularly as the negative consequences of car-dependent city design have become clearer. At its most basic, walkability refers to the degree to which a built environment supports and encourages walking. A highly walkable environment is one where it is safe, comfortable, convenient, and pleasant to walk.

Mehta (2008) defines walkable streets as those that support pedestrian behaviour, meet pedestrian perceptions, and reflect positive pedestrian attitudes. This three-part definition is useful because it acknowledges that walkability is not just about physical infrastructure - it is also about how people experience and feel about the street. A street can be physically wide enough for comfortable walking but still feel unwalkable if it is perceived as unsafe, uncomfortable, or hostile.

Gehl (2010) identifies several qualities that make streets walkable: protection from traffic, protection from weather, good sensory experience, opportunities to walk, stand, sit, and look. By these criteria, the busy market streets of Kolkata are walkable in some respects - they are intensely social, full of things to see and experience - but are deeply unwalkable in the most fundamental sense: they do not provide a safe and usable corridor for people to get from one place to another on foot.

Pedestrian Level of Service (PLOS) is the more technical measure used by transportation engineers to assess the quality of pedestrian facilities. It is typically assessed on a scale from A (free flow, excellent service) to F (breakdown conditions, pedestrians cannot move). PLOS is affected by several factors: the width of the walking corridor, the density of pedestrian flow, the presence of obstacles, and the

nature of the street environment. The Highway Capacity Manual (HCM) provides standard thresholds. In most Indian planning standards, Level of Service D or better is considered acceptable for commercial streets.

2.4.2 Footpath as Pedestrian Infrastructure: Standards and Norms

In India, the primary national standards for pedestrian infrastructure are set by the Indian Roads Congress (IRC) and are reflected in several policy documents including the National Urban Transport Policy (NUTP) 2006, the Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines 2014, and the Urban Street Design Guidelines produced under the Smart Cities Mission.

The NUTP 2006 specifies a minimum unobstructed pedestrian walking width of 1.8 metres on all commercial streets. This is the minimum required for two adults to walk side by side without obstruction. For high-footfall commercial streets like those in Gariahat or around New Market, wider footpaths - in the range of 3 to 5 metres - would be required to achieve acceptable PLOS. The IRC's guidelines for pedestrian facilities (IRC:103-2012) similarly specify minimum footpath widths based on land use context and pedestrian volume.

Leather et al. (2011), in a review of walkability and pedestrian facilities in Asian cities, noted that the gap between stated standards and on-the-ground reality is particularly large in South and Southeast Asia. Most Indian cities have pedestrian infrastructure standards that are technically adequate but are routinely violated - not by vendors alone, but by a combination of vendor encroachment, utilities infrastructure in the footpath, informal parking, and inadequate maintenance.

The concept of walkability has been critiqued from several directions. Scholars working in the Global South context, including Lambert (2020), have pointed out that walkability frameworks developed in North American and European contexts do not always translate well to cities in South and Southeast Asia. The key differences include the much higher pedestrian volumes on South Asian streets, the different land use patterns, and the presence of street vending as a normal and expected feature of commercial streets. A walkability framework calibrated to an empty footpath in a North American suburb will not give meaningful results when applied to a footpath on Gariahat Road.

Ewing and Handy (2009) developed a framework for measuring urban design qualities related to walkability that goes beyond simple width measurements to include perceptual and experiential qualities: imageability, enclosure, human scale, transparency, and complexity. By several of these criteria, the market streets of Kolkata score remarkably high - they are highly imageable, complex, and transparent. Their failure is on the most basic criterion of walkability: the physical provision of a safe and usable walking corridor.

2.4.3 Factors Affecting Pedestrian Flow and Behaviour

Pedestrian flow - the number of pedestrians passing a point per unit of time - is affected by a wide range of factors. On the demand side, flow is determined by land use (high-density commercial areas generate more pedestrians), time of day (peak hours generate higher flows), and the attractiveness of the street. On the supply side, flow is constrained by the effective width of the walking corridor, the presence of obstacles, and the configuration of the street geometry

Jacob (2023) provides the most comprehensive systematic review of the influence of street vending on pedestrian experience and behaviour. Drawing on studies from multiple countries, he identifies five main ways in which vendor presence affects pedestrians: reduction in effective walkway width; introduction of sudden stopping points (where pedestrians pause to browse); creation of crowding nodes at vendor locations; generation of pedestrian detours around vendor structures; and increased conflict between pedestrians moving in opposite directions in narrowed corridor sections. Jacob's review is particularly valuable because it synthesises quantitative data from multiple studies, making it possible to draw general conclusions rather than relying on single-city findings.

Hagos, Adnan, and Yasar (2020) used microscopic pedestrian simulation to study the effect of sidewalk vendors on pedestrian movement in Addis Ababa, Ethiopia. Their study used agent-based modelling to replicate how pedestrians navigate around vendor structures. The simulations showed that vendor presence at even modest densities - one vendor per 10 metres of footpath - produces measurable reductions in pedestrian flow speed and increases in pedestrian density. At higher vendor densities, flow breakdown occurs, with pedestrians reversing course or spilling onto the carriageway.



Figure 2.4: Effect of Sidewalk Vendors on Pedestrian Movement - Agent-Based Simulation Results

Source: Hagos, Adnan, and Yasar (2020), Cities, Vol. 103

2.4.4 Road Overflow as a Measure of Pedestrian Conflict

The URDPFI Guidelines 2014 provide a more nuanced approach to footpath design, distinguishing between different street types and different land use contexts. For high-intensity commercial streets in major urban areas, the URDPFI Guidelines specify footpath widths of 3.0 to 4.5 metres - significantly more demanding than what is typically provided in practice, and routinely violated at the study sites in this thesis.

One of the most direct and easily measurable indicators of pedestrian-vendor conflict is what this thesis calls road overflow - the percentage of pedestrians who are found walking on the carriageway rather than on the footpath. When the footpath is functional and safe, pedestrians use it. When it is blocked, crowded, or obstructed to the point of being unusable, pedestrians move onto the road. This is a rational response to an irrational situation, but it creates a serious safety risk, because the road is designed for vehicles, not for people on foot.

The gendering of pedestrian experience on market streets is a dimension that the mainstream pedestrian research literature has historically underplayed. Women pedestrians in Indian commercial streets face additional challenges beyond simple footpath obstruction: they must navigate through dense crowds in ways that manage personal safety, they are more vulnerable to the kind of accidental physical contact that dense crowds produce, and they are more likely to be accompanied by young children or elderly relatives whose mobility needs add complexity to the challenge of navigating a blocked footpath. Studies that treat pedestrians as an undifferentiated category miss these dimensions of differential impact. This thesis, in its primary data collection, records the presence of women pedestrians, elderly pedestrians, and pedestrians with children as a separate category, in order to begin addressing this gap.

Road overflow is not a standard measure in the pedestrian research literature - it is an indicator developed specifically for this study. However, it is consistent with the concept of 'pedestrian displacement' that appears in several studies. Patil et al., in their comparative analysis of vendor-pedestrian interactions from the Global North and South, use similar measures of pedestrian deviation from the designated walking path as a proxy for conflict intensity.

Dang, Pham, and Boudreau, in their rhythm analysis of pedestrian streets in Hanoi, document how pedestrian routes shift across the day - with more road use during periods of high vendor activity and more footpath use during vendor off-peak hours. This temporal variation in road overflow is one of the key patterns this thesis is designed to measure and analyse.

2.5 Spatial Conflict Between Vendors and Pedestrians

2.5.1 Nature and Causes of Vendor-Pedestrian Conflict

The conflict between vendors and pedestrians is, at its most basic, a conflict over space. Both groups need the same physical territory - the footpath - to do what they need to do. Vendors need space to display their goods, serve their customers, and run their business. Pedestrians need space to walk from one place to another safely and comfortably. When the footpath is wide enough, and when the allocation of space between the two groups is clear and well-managed, both can coexist. When the footpath is narrow and no allocation has been made, conflict is inevitable.

Research on pedestrian behaviour in the context of street vending has identified a phenomenon that might be called the vendor magnet effect: vendor presence not only obstructs pedestrian movement but also reshapes the destinations and routes that pedestrians choose. Pedestrians deliberately seek out streets with active vending - to browse, to buy, to experience the social vitality of the market - which means that vendor-heavy streets attract more pedestrians than similar streets without vending. This is an important finding for planning, because it suggests that any intervention that removes vendors entirely from a street may reduce pedestrian traffic as well as conflict, producing a quieter but economically and socially diminished street environment.

Patil et al. frame this conflict as a competition between two legitimate but incompatible uses of the same physical space. They argue that the conflict is not primarily about the presence of vendors per se - in many contexts around the world, vendors and pedestrians coexist productively and even enhance each other's experience of the street. The conflict arises when vendor occupation becomes so extensive that it eliminates the pedestrian walking corridor entirely.

Jacob (2023) identifies several specific mechanisms through which vendor presence creates conflict with pedestrians. First, vendors reduce effective walkway width by occupying the edges of the footpath with their structures, pushing pedestrians toward the centre. Second, vendors create sudden stopping points - places where pedestrians who are browsing or transacting stop in the middle of the walking flow, creating bottlenecks. Third, vendors attract crowds, particularly around popular stalls or during busy hours, which increases pedestrian density to the point where flow is impeded.

Boonjubun (2017), studying vendor evictions in Bangkok, documents how conflicts between vendors and pedestrians are often mediated by enforcement - with periodic clearance drives reducing vendor occupation temporarily, only for vendors to return once enforcement pressure eases. This cycle of informal occupation, enforcement, and re-occupation is a pattern that repeats itself in virtually every city where street vendors operate without a clear legal framework for spatial allocation.

It is also important to note that vendor-pedestrian conflict is not symmetric. The costs of the conflict are borne differently by different social groups. For pedestrians, the cost is inconvenience, delay, discomfort, and risk of accident on the carriageway.

These costs fall disproportionately on the elderly, on persons with disability, on women pedestrians managing children, and on pedestrians who are in a hurry because they are late for work or an appointment. For vendors, the cost of any regulatory intervention is potentially existential: losing a vending location means losing a livelihood. This asymmetry in the stakes of the conflict is one of the reasons why planning interventions that are technically correct - that correctly identify the need for a clear pedestrian corridor - can be politically and socially destructive if they are implemented without providing vendors with a viable alternative.

2.5.2 Conflict Zones: Nodes, Edges, and Mid-block Sections

Not all parts of a street are equally prone to vendor-pedestrian conflict. The literature consistently identifies three types of locations where conflict tends to concentrate.

The first is nodes - intersections, corners, entrances to markets or transport facilities, and other points where pedestrian flows from multiple directions converge. These are also the locations that vendors favour most, because the convergence of pedestrian flows means maximum exposure to potential customers. The result is that the most congested pedestrian locations are simultaneously the most attractive vendor locations. This spatial overlap between vendor preference and pedestrian demand is one of the fundamental drivers of conflict.

The second is edges - the boundaries between the footpath and the carriageway, and between the footpath and the building face. Vendors tend to position themselves at these edges because it gives them two frontages: the footpath-facing side for passing pedestrians, and the building-facing side for customers who approach from the shops behind. In doing so, they often compress the usable walking corridor into a narrow strip through the middle of the footpath.

The third is mid-block sections - linear stretches of footpath between nodes, particularly in front of popular commercial establishments. Here, vendors line up along the building edge in a continuous row, reducing the footpath width uniformly over a significant length. Mid-block conflict tends to be less intense per square metre than node conflict, but extends over longer distances and can be more disruptive to through-pedestrian movement.

Sun et al. (2016) specifically examined how street vending contributes to or detracts from walkability in Yuncheng, China, and found that the relationship is not straightforwardly negative. At low densities, vendor presence can actually enhance the walking experience - it makes the street more interesting, provides shelter and amenity, and creates a lively environment that many pedestrians find pleasant. Conflict arises when vendor density crosses a threshold beyond which the walkway is effectively blocked.

2.5.3 Role of Street Morphology in Shaping Conflict Intensity

Street morphology - the physical form of the street, including its width, the arrangement of its edges, and the configuration of its nodes - is one of the most important but least-studied determinants of vendor-pedestrian conflict intensity. Two streets with the same number of vendors and the same volume of pedestrian traffic can have very different conflict intensities depending on the physical dimensions of the space they share.

Sun, Bell, and Scott (2018) explored this relationship using an actor-network theory framework, arguing that the walkability of a street with vendors is not just a function of the number of vendors or the number of pedestrians, but of how the physical configuration of the street mediates the relationship between them. A wider street with well-defined edges provides more space for both groups to operate. A narrower street with complex geometry forces them into direct competition.

Dovey, Recio, and Pafka (2022) found, in their study of Manila's informal vending spaces, that the spatial logic of vendor occupation is highly responsive to morphological conditions. Vendors occupy more space when more space is available, but they also adapt to constrained spaces - clustering at the most accessible points and leaving others relatively clear. The result is a heterogeneous pattern of occupation that planning interventions need to account for spatially.

Zhang and Shao (2024), in a recent study evaluating the suitability of street vending planning in urban public space, introduce a framework for assessing which parts of a street are suitable for vending based on morphological criteria - width, edge conditions, proximity to transport nodes, and pedestrian volume. Their framework is particularly relevant to the design of vending zones under the Street Vendors Act 2014, and it is directly applicable to the study sites in this thesis.

Rashid et al., in their study using Structural Equation Modelling (SEM) in Srinagar, India, found that pedestrian satisfaction with the street experience is significantly affected by vendor presence, but the direction of the effect depends critically on whether there is sufficient space for both groups. When there is adequate space - when vendors are present but a clear pedestrian corridor is maintained - pedestrian satisfaction is actually slightly higher in vendor-present streets than in vendor-absent ones. It is only when vendor occupation eliminates the walking corridor that satisfaction drops sharply. This finding has significant policy implications: the goal of planning intervention should be to maintain the vendor presence that enhances the pedestrian experience while preventing the occupation that eliminates the walking corridor.

The Singh and Bhashyam case study of Lajpat Nagar Market in New Delhi provides a detailed quantitative picture of what happens when no spatial allocation exists. Their vendor survey in a designated non-vending zone found hundreds of vendors operating in a space legally designated as clear. These vendors were not distributed randomly - they were concentrated at the most commercially valuable locations, near the main entry gates, near high-footfall food establishments, and at junctions with maximum pedestrian exposure, producing systematic blockage at precisely the points where pedestrian demand was highest.

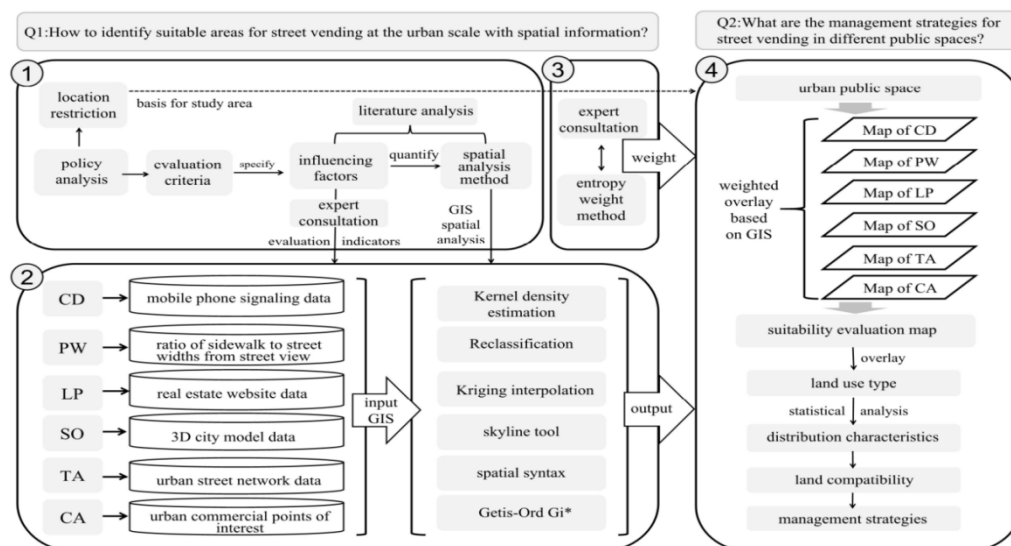


Figure 2.5: Framework for Evaluating Suitability of Street Vending Locations Based on Morphological Criteria

Source: Zhang and Shao (2024), *Land*, Vol. 13(4)

2.5.4 Temporal Dimensions of Conflict: Peak vs. Off-peak

The temporal dimension of vendor-pedestrian conflict has received relatively little attention in the literature, despite being one of the most important factors for planning purposes. If conflict is concentrated at specific hours of the day, then time-based interventions - restricting certain types of vending to off-peak hours, for example, or managing vendor density during peak pedestrian periods - become possible. But designing such interventions requires data on how conflict intensity varies across the day.

Sun et al. (2020) provide the most detailed temporal analysis available in the literature. Their study in Yuncheng found that conflict intensity (measured through pedestrian flow speed and pedestrian density) followed a clear daily rhythm, with peaks in the morning and the late afternoon/early evening. Off-peak hours showed significantly reduced conflict, with vendors and pedestrians coexisting with minimal friction. Crucially, the study found that the spatial pattern of conflict also changed across the day - different parts of the street became conflict hotspots at different times, as vendor activity and pedestrian flows shifted.

Dang, Pham, and Boudreau's rhythm analysis of Hanoi's pedestrian streets similarly identifies temporal patterns in the vendor-pedestrian relationship, describing how the street transforms from a primarily pedestrian space in the early morning to a primarily commercial space during the day and back again in the evening. These temporal transformations are not always conflictual - in some periods, the two groups coexist well. The conflict concentrates at the transitions between modes: when pedestrian volume spikes at peak hours while vendor activity is at its highest.

Rashid et al., in their study of pedestrian perceptions and street vending in Srinagar, India, found using Structural Equation Modelling (SEM) that temporal factors are among the strongest predictors of pedestrian satisfaction with the street experience. Pedestrians who encounter vendor activity at off-peak hours report much higher satisfaction than those who encounter the same physical setup at peak hours. This finding has direct implications for time-based street management strategies.

2.6 Governance and Regulation of Street Vending

The concept of edge spaces is particularly important in the Indian market street context. Indian commercial streets typically have a complex edge condition: the boundary between the footpath and the building face is not a simple wall. It is a zone of transition that includes building setbacks, shopfront display areas, and vendor occupation zones. This layered edge condition creates a multi-level competition for footpath space that is more complex than the simple vendor-versus-pedestrian framing suggests.

2.6.1 Global Approaches to Street Vendor Regulation

Across the world, cities have approached the regulation of street vending in very different ways, reflecting different political traditions, different conceptions of public space, and different relationships between formal and informal economic sectors. Bromley (2000), in an early but still useful review of global approaches, identified a spectrum from outright prohibition at one end to full recognition and integration at the other, with most cities occupying a messy middle ground of selective tolerance, periodic enforcement, and institutional ambiguity.

At the prohibition end of the spectrum, cities have attempted to remove vendors entirely from public spaces - sometimes through forcible eviction, sometimes through relocation to enclosed markets, sometimes through regulatory exclusion zones. Angsuthonsombat and Samantrakulu (2019) document Bangkok's periodic vendor bans and their social and economic impact, finding that prohibition without alternative livelihood provision simply pushes vendors underground, to less visible but often more vulnerable locations.

At the recognition end, cities have attempted to integrate vendors into the formal planning system - designating vending zones, issuing licences, regulating vendor behaviour, and providing basic services such as water, waste collection, and shelter. Abizaid and Ogando (2022) document the co-creation of a street vending ordinance in Lima, Peru, as an example of participatory governance in which vendors had a genuine voice in designing the regulatory framework.

Roever and Skinner (2016) argue that the most effective approaches to vendor regulation are those that start from recognition of vendors as legitimate workers with

legitimate spatial claims, rather than as encroachers who must be managed or removed. This starting point changes the entire frame of regulation: from eviction and exclusion to allocation and integration.

2.6.2 The Street Vendors Act 2014: Legal Framework in India

India's Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014 is one of the most progressive pieces of vendor legislation in the world. It represents the culmination of decades of advocacy by vendor unions and civil society organisations, and it rests on the constitutional guarantee of the right to livelihood under Article 21 of the Constitution of India.

The Act has two stated goals. The first is to protect the livelihoods of street vendors by giving them a legal right to vend in public spaces, subject to the terms established by a Town Vending Committee. The second is to regulate street vending so that it does not obstruct the rights of other users of public space, including pedestrians. Both goals are directly relevant to this thesis.

The presence or absence of a building setback is another morphological variable that significantly affects conflict intensity. Streets where buildings are set back from the property line provide additional space that can accommodate vendors without eliminating the pedestrian corridor. Streets where buildings are built to the property line leave the footpath as the only available space for both pedestrians and vendors. In the market streets of Kolkata, both conditions exist within short distances of each other, creating highly variable conflict conditions along the same street.

Centre for Civil Society (2021) conducted an analysis of cases, rules, and schemes under the Act and found that implementation has been deeply uneven across states and cities. While the Act provides a comprehensive framework - including vendor surveys, Certificate of Vending, vending zone demarcation, and multi-stakeholder Town Vending Committees - most cities have implemented only portions of this framework, and many have implemented none of it in any meaningful spatial sense.

The West Bengal Urban Street Vendors Rules, framed under the Act by the Government of West Bengal, define in detail how street vendors must operate within the state's jurisdiction. They specify the composition and responsibilities of the Town Vending Committee, the procedure for issuing Certificates of Vending, and the

criteria for vending zone demarcation. These rules are the regulatory baseline for the study sites in this thesis.

2.6.3 Town Vending Committees and Vending Zone Demarcation

The Town Vending Committee (TVC) is the institutional heart of the Street Vendors Act 2014. It is a multi-stakeholder body that must include representatives of vendors (with a minimum of forty percent women vendors), the local body, the planning authority, the traffic police, market associations, and resident welfare associations. Its responsibilities include conducting vendor surveys, issuing Certificates of Vending, demarcating vending zones, and resolving disputes.

The demarcation of vending zones is the most spatially significant function of the TVC. Section 21 of the Act requires the local body to identify vending zones in every street and public space. Section 22 requires the local body to demarcate these zones physically, ensuring that a minimum unobstructed pedestrian corridor is maintained alongside the vendor space. In principle, this means that every commercial street in India should have a clearly marked zone where vending is permitted, separated from a clearly marked zone that must remain clear for pedestrian movement.

In practice, as Chatterji and Roy (2016) document in their study of street vendors and local politics in Kolkata, the TVC has rarely functioned as a genuine spatial planning institution. It tends to be dominated by political interests, and its decisions - where they are made at all - often reflect patronage networks rather than spatial logic. The result is that vending zones on paper bear little relationship to vendor locations on the ground.

2.6.4 The Gap Between Policy and Ground Reality

The gap between what the Street Vendors Act 2014 mandates and what actually happens on the ground is one of the most striking features of the Indian urban landscape. Singh and Bhashyam's case study of Lajpat Nagar Market in New Delhi documents this gap in granular detail. They conducted a comprehensive vendor survey in a designated non-vending zone and found hundreds of vendors operating in violation of the zone designation - not because they were unaware of the rules, but because the rules had never been spatially implemented in a way that gave vendors a viable alternative.

Sekhani, Mohan, and Roy (2019), in their study of street vending in Kolkata's markets, found that the regulatory framework was essentially invisible to vendors on the ground. Vendors knew about the existence of the Act and had varying degrees of awareness of their rights under it, but the institutional apparatus - TVCs, Certificates of Vending, vending zones - was either absent or non-functional at the study locations. Enforcement was arbitrary, driven by political pressures rather than spatial logic, and vendors had developed a range of adaptive strategies to manage the uncertainty.

This policy-practice gap is not unique to India. Jongh (2022), studying contested urban spaces in Zambia; Adama (2020), studying street vending in Abuja; and Omoegun (2023), studying vendor displacements in Lagos - all document similar gaps between formal regulatory frameworks and actual governance on the ground. The consistent finding is that vendor regulation works best when it is developed with, not against, the vendors themselves.

2.7 Case Studies: Managing Vendor-Pedestrian Conflict in Cities

2.7.1 Indian Cities: Ahmedabad, Delhi, and Kolkata

Ahmedabad provides perhaps the most-studied example of vendor management in India. Deore and Lathia (2019) document how the Ahmedabad Municipal Corporation has attempted to create designated vending zones on major commercial streets, with mixed results. The zones were designed with fixed dimensions, placed at intervals along the footpath, and assigned to individual vendors through a lottery system. The physical design worked reasonably well in some locations - vendors operated within their zones and a clear pedestrian corridor was maintained - but broke down in others, where the number of vendors exceeded the number of designated spaces and informal occupation of the remaining footpath resumed.

Brown, Lyons, and Mahadevia (2012), in their detailed study of street vendors in Ahmedabad, note that the success of spatial regulation depends critically on whether the vendors themselves accept the legitimacy of the allocation. When vendors feel that the process was fair - that they had a say in where zones were located and how spaces were allocated - compliance is much higher than when zones are imposed from

above without consultation. This finding points to the importance of participatory governance in vending zone design.

The global literature on vendor regulation also highlights the important role of vendor organisations in shaping the regulatory environment. In cities where vendors are well-organised - where they have established associations, recognised leaders, and the ability to negotiate collectively with authorities - the regulatory outcomes tend to be better for vendors and, paradoxically, also for pedestrians. This is because organised vendor communities have an interest in maintaining the legitimacy of their occupation of public space, which means they have an interest in self-regulating: keeping their members from encroaching beyond agreed boundaries and maintaining a usable pedestrian corridor.

Turner and Schoenberger (2012), in their study of street vendor livelihoods in Hanoi, document how vendor associations negotiate with district authorities over vending locations, times, and conditions. These negotiations produce outcomes that are more stable and more spatially rational than the outcomes of unilateral enforcement. The lesson for Kolkata is that the Town Vending Committee, which the Act mandates as a multi-stakeholder governance body, could serve precisely this negotiation function - if it were properly constituted and given genuine authority.

In Delhi, the case study of Lajpat Nagar Market by Singh and Bhashyam is particularly instructive. They found that a formally designated non-vending zone was occupied by hundreds of vendors simply because no alternative vending zone had been provided. Their recommendation - consistent with the findings from Ahmedabad - is that spatial regulation of vending must always be accompanied by the provision of a viable vending space nearby. Eviction without alternative provision simply moves the problem rather than solving it.

In Kolkata, Sekhani, Mohan, and Roy (2019) and Chatterji and Roy (2016) document the deeply political nature of vendor-pedestrian conflict. In Kolkata, unlike in Ahmedabad or Delhi, the relationship between the ruling political party and the vendor community has been a central factor shaping enforcement and allocation. Periodic political crises - such as the controversy around the Mamata Banerjee government's approach to hawker eviction, documented in press reporting from 2024

- illustrate how vendor regulation in Kolkata is as much a political question as a spatial one.

2.7.2 Asian Cities: Bangkok, Manila, and Hanoi

Bangkok's experience with vendor regulation is instructive as an example of the consequences of heavy-handed enforcement. The Bangkok Metropolitan Administration has, at various points, attempted to ban street vendors from entire stretches of footpath in the name of improving pedestrian mobility and urban aesthetics. Boonjubun (2017) documents the conflict and social cost of these evictions, showing that the removal of vendors did not result in improved pedestrian conditions - in many cases, the footpath remained cluttered with other obstructions, and the economic loss to vendors was severe.

Batréau and Bonnet (2016) describe Bangkok's approach as 'managed informality' - a system in which vendors are tolerated in some locations and not others, with the boundaries of tolerance being determined by a combination of political pressure, commercial interest, and bureaucratic convenience. This managed informality is unstable: the boundaries shift over time, vendors cannot plan for the future, and the pedestrian environment remains unpredictable.

In Manila, Dovey, Recio, and Pafka (2022) document the spatial logic of vending in the Baclaran district. Their assemblage analysis shows how vendors, pedestrians, vehicles, and the physical structure of the street interact to produce a complex but legible spatial pattern. Crucially, they found that the spatial logic of informal vending can inform formal regulation - understanding where vendors cluster, and why, provides a rational basis for designating vending zones in locations that vendors will actually use and where pedestrian impact will be manageable.

Dang, Pham, and Boudreau's rhythm analysis of Hanoi's pedestrian streets documents how temporal management of the street - varying the permitted uses across the day - can significantly reduce vendor-pedestrian conflict without removing vendors altogether. The study found that allowing vendors to set up early in the morning and evening, but requiring them to withdraw during the peak pedestrian hours of the late morning and afternoon, produced a workable balance between the two groups.

2.7.3 Lessons from International Practice

The Street Vendors Act 2014 was not created in a vacuum. It emerged from decades of vendor advocacy, legal battles, and policy debates. The landmark Supreme Court judgment in *Sodan Singh v. New Delhi Municipal Committee* (1989) established the principle that the right to carry on a trade or business, including street vending, is protected under Article 19(1)(g) of the Constitution, subject to reasonable regulation. This constitutional foundation is what gives the Act its force - and what makes its non-implementation in many cities a governance failure, not merely an administrative oversight.

Looking beyond Asia, studies from Latin America, Africa, and elsewhere provide additional lessons. Abizaïd and Ogando (2022) document the co-creation of street vending ordinance 1787 in Lima, Peru - a participatory process in which vendors, city officials, planners, and civil society organisations worked together to design a regulatory framework that all parties could accept. The key lesson from Lima is that the process of developing regulations matters as much as the content of the regulations themselves. Regulations developed with vendors are more likely to be followed by vendors.

Falla and Valencia (2019), studying vendor regulation in Bogotá, Colombia, found that access to public space by street vendors is not simply a matter of spatial planning - it is also shaped by the social and political capital of vendor organisations, the degree of state willingness to engage with informal workers, and the broader framework of urban rights that is or is not enshrined in local governance. Their finding that vendor regulation in Bogotá improved significantly when the city adopted a 'right to the city' framework has direct implications for Indian cities where the Street Vendors Act 2014 provides a comparable legal foundation.

2.7.4 Summary of Planning Strategies and Their Applicability

Table 2.1: Summary of Planning Strategies for Vendor-Pedestrian Conflict from Selected Cities

Strategy	City / Context	Key Outcome	Applicability to Kolkata
Vending zone designation with physical demarcation	Ahmedabad, India	Partial success; depends on vendor buy-in and sufficient zone provision	High - directly supported by SVA 2014
Participatory ordinance development	Lima, Peru	High compliance; vendors accepted zones they helped design	Moderate - requires strong TVC functioning
Time-based vendor management	Hanoi, Vietnam; Yuncheng, China	Reduces peak-hour conflict without removing vendors	High - feasible with enforcement
Managed informality / licensed zones	Bangkok, Thailand	Unstable; vendor insecurity remains high	Low - political not spatial solution
Morphology-responsive zone design	Manila, Philippines; Semarang, Indonesia	Vendor occupation patterns inform zone location	High - directly applicable to study sites
Non-vending zones with alternative provision	Delhi, India	Works only if alternative space is genuinely viable	High - must accompany any eviction policy

Source: Compiled from reviewed literature, 2025

The Act's requirement that a minimum of forty percent of seats on the Town Vending Committee be reserved for women vendors is a significant progressive provision, but Centre for Civil Society (2021) found that it is rarely implemented in practice. A TVC without adequate women's representation is unlikely to design vending zones that work well for women vendors, who have distinctive spatial needs - smaller setups, perishable goods requiring quick customer access, and greater vulnerability to enforcement.

2.8 Review of Tools and Techniques Used in Similar Studies

2.8.1 Spatial Measurement Methods: Footpath Width and Occupation Depth

The most basic spatial measurement in studies of vendor-pedestrian conflict is the measurement of footpath width - specifically, the distinction between the total footpath width (as built) and the effective pedestrian corridor width (the portion of the footpath that is actually available for walking, after vendor structures, utilities, and other encroachments are subtracted).

Deore and Lathia (2019), in their study of streets in Ahmedabad, measured both the total footpath width and the vendor occupation depth at multiple points along the study streets, then calculated the effective pedestrian corridor width as the difference between the two. This simple measure proved to be the most powerful predictor of pedestrian behaviour at their study sites: the narrower the effective corridor, the higher the proportion of pedestrians observed on the carriageway.

Peimani and Kamalipour (2022) used spatial mapping in GIS to document the footprint of vendor occupation across study streets in Iran. Their mapping distinguished between fixed vendor structures, semi-mobile vendor equipment, and goods displayed on the footpath. This level of spatial detail allowed them to analyse not just how much of the footpath was occupied, but what kind of occupation it was and how it related to pedestrian movement patterns.

Zhang and Shao (2024) developed a composite index for evaluating the suitability of vending locations, combining physical measurements (footpath width, setback from the carriageway, distance from nodes) with contextual indicators (land use, pedestrian volume, proximity to transport). This kind of multi-criteria spatial assessment is directly applicable to the task of vending zone designation under the Street Vendors Act 2014.

The methodology of vendor surveys - the technical process of counting, locating, and classifying vendors in a defined area - is deceptively complex. The most common approach is a point-in-time snapshot: an enumerator walks a defined route at a defined time and records every vendor they encounter, noting location, type, commodity, and setup size. This approach has the advantage of simplicity, but it misses the temporal dynamics of vending: the vendors who are present at nine in the morning may be

completely different from those present at four in the afternoon. A single-time-point survey will systematically undercount vendors with irregular hours (including mobile vendors and part-time vendors) and will overcount the importance of vendors who happen to be setting up or packing up at the time of the survey. A more robust approach, adopted in this thesis, is a repeated-rounds survey at regular intervals across the working day, which captures the full daily pattern of vendor presence and allows temporal analysis of the kind that planning interventions require.

2.8.2 Pedestrian Count Surveys and Conflict Measurement

Pedestrian count surveys are the most widely used method for quantifying pedestrian movement in street studies. The basic technique involves stationing an observer at a specific point on the street and counting the number of pedestrians passing that point in each direction over a defined time interval (typically 15 or 60 minutes). The results are then compiled into hourly totals or peak-hour values.

In Kolkata, the political economy of street vending is distinctive and complex. Dhar, Sen, and Patnaik (2023) document how hawkers in Kolkata are embedded in dense networks of political patronage that extend from the ward level to the state level. Vendors typically pay weekly or monthly fees to political workers associated with the ruling party, and in return receive protection from enforcement drives. This informal protection arrangement is not official - it gives vendors a degree of security but also a degree of vulnerability: when the political winds shift, their protection can evaporate overnight. The 2024 controversy around hawker evictions, which culminated in the Chief Minister's public statement that eviction was not the government's goal, illustrates precisely how vendor regulation in Kolkata is as much a political question as a spatial one.

Hagos, Adnan, and Yasar (2020) combined manual pedestrian counts with agent-based simulation in their study in Addis Ababa, using the manual counts to calibrate the simulation parameters. This combination of primary data collection and computational modelling allowed them to explore scenarios beyond what was directly observed - for example, testing the effect of different vendor densities on pedestrian flow without having to manipulate the actual street.

Jacob (2023) reviews a range of pedestrian count methodologies used in studies of vendor-pedestrian interaction, noting that the most informative studies are those that

count not just the total number of pedestrians but also their behaviour - specifically, whether they are using the footpath or the carriageway, how often they stop, how they navigate around obstacles, and how their movement speed varies. These behavioural observations, combined with count data, provide a much richer picture of the conflict than counts alone.

Sun et al. (2016, 2018, 2020) used a combination of pedestrian counts, video recording, and GPS tracking in their Yuncheng studies to capture both the quantity and the spatial pattern of pedestrian movement. GPS tracking in particular allowed them to map the actual paths that pedestrians took through the street space, revealing deviations from the footpath, detours around vendor clusters, and the spatial extent of conflict zones.

2.8.3 Temporal Analysis Frameworks

The temporal dimension of vendor-pedestrian conflict requires analysis frameworks that go beyond the single-snapshot survey. Most studies that have addressed this dimension use some form of continuous or repeated observation across the working day, with data collected at regular intervals (typically every hour or every two hours) to track how conditions change.

Sun et al. (2020) used a full-day continuous survey approach, collecting data at one-hour intervals from early morning to late evening. This approach produced a complete picture of the daily rhythm of vendor and pedestrian activity at their study sites, allowing them to identify not just the peak conflict hour but the full temporal profile of the conflict - how it built up, when it peaked, and how it subsided.

Sun (2022) extended this approach using Lefebvre's rhythmanalysis framework, which goes beyond simple time-series data to analyse the rhythmic patterns of different urban activities. This framework is particularly useful for understanding how vendor and pedestrian rhythms interact - when they are in sync (both active, but not in conflict), when they are in tension (both active, in conflict), and when they are disjointed (one active, the other not).

Dang, Pham, and Boudreau's spatial-temporal reading of public spaces in Hanoi uses a similar framework, combining temporal observation with spatial mapping to produce a four-dimensional picture of how the street changes across time and space

simultaneously. This is the kind of analytical framework that most effectively captures the reality of shared street space in Asian commercial districts.

2.8.4 Qualitative Observation Approaches in Street Studies

Quantitative data alone - counts, widths, percentages - cannot capture the full picture of vendor-pedestrian conflict. Qualitative observation is essential for understanding the mechanisms of conflict: how vendors claim space, how pedestrians adapt to it, what strategies both groups use to negotiate the shared space, and what the texture of daily experience feels like for those who use the street.

Sun, Bell, and Scott (2016, 2018) combine quantitative survey data with systematic qualitative observation in their Yuncheng studies, recording not just what happens but how it happens - the specific behaviours of vendors and pedestrians, the micro-negotiations over space, the moments of friction and accommodation. This combination of quantitative and qualitative data is what gives their studies their analytical depth.

Patil et al., in their comparative review of vendor-pedestrian interactions, note that qualitative observation is particularly important for capturing gender dimensions of the conflict - the specific experiences of women pedestrians, women vendors, and elderly or disabled pedestrians who are disproportionately affected by footpath obstruction. These experiences are invisible in count data but crucial for understanding the full social cost of the conflict.

Field observation also reveals aspects of vendor behaviour that survey data misses - the informal rules and norms that govern who occupies which space, the negotiated boundaries between vendors, the relationship between vendors and enforcement officers, and the ways in which vendors adapt to changing conditions across the day. This ethnographic dimension of street research is documented in detail by Recio (2021) in his study of informal traders in Baclaran, Manila.

2.9 Synthesis and Research Gap

Planning literature in the Indian context has also documented a specific challenge that is particularly relevant to Kolkata: the role of electoral politics in shaping vendor regulation. In cities governed by parties with strong ties to vendor communities - as

Kolkata has been under the Trinamool Congress government - the political cost of enforcing vending regulations is often perceived as too high to bear in the approach to elections. The result is a cyclical pattern in which enforcement is tightened after elections (when the political cost is lowest) and relaxed before elections (when the political cost is highest). This political cycle maps onto the physical landscape of the market street in ways that are disruptive to both vendors and pedestrians: vendors never know whether their location is secure, and pedestrians never know whether the footpath will be usable. A planning framework that is robust to this political cycle - that creates stable spatial outcomes regardless of the electoral calendar - would be a significant improvement on the current situation.

2.9.1 Summary of Key Insights from Literature

The literature reviewed in this chapter points to several consistent and important findings that form the analytical backbone of this thesis.

First, street vending is not a problem to be eliminated but a reality to be planned for. The economic importance of street vending for vendors and for the urban poor who depend on their goods and services is well established. The challenge for planners is not to remove vendors but to design the street in a way that accommodates them without eliminating the walking corridor.

Second, vendor typology matters enormously for conflict analysis. Fixed vendors, semi-mobile vendors, and mobile vendors have very different spatial footprints and create very different patterns of conflict with pedestrians. Planning interventions that treat all vendor types the same are unlikely to work well.

The use of Geographic Information Systems (GIS) in street vending research has grown significantly in the past decade, providing planners with tools for spatial analysis that were previously unavailable. Li et al. (2022), in a study using social sensing data to analyse spatiotemporal patterns of street vending in a Chinese city, demonstrated how GIS analysis of spatially referenced data can reveal the geography of vendor-pedestrian conflict at the city scale - identifying hotspot areas, seasonal patterns, and the relationship between conflict intensity and street morphology. This kind of spatial analysis tool is directly applicable to the kind of planning work that the Street Vendors Act 2014 requires, particularly the identification of vending zones and no-vending zones based on spatial criteria.

Third, conflict is concentrated at specific spatial locations and specific times of day. Nodes and edge zones see the most intense conflict. Peak pedestrian hours see the highest conflict intensity. Planning interventions that are spatially and temporally targeted will be more effective than blanket approaches.

Fourth, street morphology is a critical variable. The width of the street, the configuration of its edges, and the presence of nodes all shape how much conflict results from a given level of vendor occupation. Morphology-responsive planning is essential.

Fifth, governance matters as much as spatial design. The Street Vendors Act 2014 provides an adequate legal framework. The problem is implementation. Without functional TVCs, without vendor surveys, without vending zone demarcation, the legal framework does not translate into spatial reality.

Sixth, the most successful interventions are those that are developed with vendors, not against them. Participatory zone design, vendor registration, and stable legal recognition of vending locations produce much better outcomes than periodic enforcement and eviction.

2.9.2 What the Literature Has Not Addressed (Gap Identification)

Despite the richness of the literature reviewed in this chapter, several significant gaps remain. These gaps define the specific contribution that this thesis is designed to make.

The first gap is the absence of simultaneous, site-specific measurement of both vendor occupation and pedestrian movement in Indian commercial streets. Most existing studies measure one or the other - either they map vendors or they count pedestrians. Very few do both at the same locations at the same times, with the explicit goal of understanding the spatial relationship between the two. This combined measurement is what this thesis provides.

The second gap is the absence of temporal analysis at sufficient resolution. The few studies that do look at temporal variation in vendor-pedestrian conflict typically do so at a coarse level - comparing morning versus evening, or weekday versus weekend. The detailed hour-by-hour analysis that is needed to inform time-based street management strategies has not been conducted at Indian study sites.

The third gap is the absence of morphological comparison across Indian market streets. Most existing studies of Indian vendor-pedestrian conflict focus on a single site. The comparative morphological analysis that would allow planners to understand how the physical structure of the street shapes conflict intensity - and therefore how to design different types of streets differently - has not been done in the Indian context.

The fourth gap is what might be called the neutrality gap. Most research on vendor-pedestrian conflict either advocates for vendors or advocates for pedestrians. A genuinely neutral assessment that maps the legitimate claims of both groups and proposes solutions that work for both is rare in the existing literature. This thesis attempts this kind of balanced analysis as its primary analytical stance.

Table 2.2: Summary of Research Gaps Identified from Literature Review

Gap	What the Literature Currently Provides	What This Thesis Contributes
No combined vendor + pedestrian spatial measurement in Indian markets	Either vendor mapping OR pedestrian counts, rarely both	Simultaneous measurement of both at all study spots across seven hours
No temporal analysis at hourly resolution in Indian context	Coarse temporal comparisons (morning vs evening)	Continuous hourly survey from 11am to 6pm at all study locations
No morphological comparison across Indian market street types	Single-site studies without morphological comparison	Comparison of two sites with contrasting morphologies across multiple survey spots
No neutral stakeholder framework for both vendors and pedestrians	Advocacy for one group or the other	Balanced analysis of both groups with spatial conflict zone identification
No ground-level documentation of SVA 2014 implementation gap in Kolkata	Legal analysis of the Act in isolation	Site-specific documentation of the gap between Act provisions and ground reality

Source: Literature Review, 2025

Structural Equation Modelling (SEM), used by Rashid et al. in their Srinagar study, is a powerful technique for analysing complex relationships between multiple variables simultaneously. In the context of vendor-pedestrian conflict, SEM allows researchers to model how different factors - vendor density, footpath width, time of day, vendor type, pedestrian volume - combine to produce the observed levels of conflict and pedestrian satisfaction. The advantage of SEM over simpler regression techniques is that it can handle the complex interdependencies among these factors, providing a more accurate picture of the causal mechanisms underlying the conflict.

2.9.3 How This Thesis Responds to the Identified Gaps

The methodology of this thesis is designed specifically to address each of the gaps identified above. The combined pedestrian count and vendor occupation survey addresses the first gap. The seven-hour continuous survey, with data collected at one-hour intervals, addresses the second gap. The comparative analysis of two sites with contrasting morphologies - Gariahat Market and New Market - addresses the third gap. The explicit commitment to a neutral, balanced analytical stance addresses the fourth gap. And the regulatory gap analysis in Chapter Four, which compares site conditions with the requirements of the Street Vendors Act 2014, addresses the fifth gap.

In doing so, this thesis does not claim to resolve all the questions raised by the literature. The spatial conflict between vendors and pedestrians in Indian commercial streets is a complex, multi-dimensional problem that no single study can fully address. What this thesis does claim is that it provides a more complete, more balanced, and more spatially specific picture of the conflict at its study sites than the existing literature provides - and that this picture is the necessary foundation for the planning proposals developed in Chapter Five.

2.10 Conclusion

This chapter has reviewed the literature across six interconnected areas: the conceptual framework of public space and the shared street; street vending typology and spatial behaviour; pedestrian movement and walkability; spatial conflict between vendors and pedestrians; governance and regulation; and the tools and techniques used in similar studies.

The review has confirmed that the vendor-pedestrian conflict on commercial market streets is a well-recognised problem in the urban planning literature, with documented examples from dozens of cities in Asia, Africa, Latin America, and beyond. The core of the problem is consistent across contexts: both groups need the same physical space, no clear allocation has been made, and the result is a daily contest over territory that produces bad outcomes for both groups simultaneously.

The literature has also confirmed that solutions exist. Vending zone designation, morphology-responsive spatial planning, time-based street management, participatory governance, and the statutory framework of the Street Vendors Act 2014 together provide a comprehensive toolkit for addressing the conflict. The challenge is not the absence of solutions. It is the absence of the spatial data, the institutional will, and the planning capacity needed to implement them.

CHAPTER 3: SITE SELECTION, DESCRIPTION AND ANALYSIS

3.1 Introduction

This chapter explains where the study was conducted, why those locations were chosen, and what those locations actually look and feel like on the ground. Before a planner can propose anything useful, they need to know the physical reality of the street they are working with - its width, its character, who uses it, how vendors have arranged themselves, and how pedestrians move through it.

The chapter is organised in the following order. First, it explains why Kolkata was chosen as the city for this study. Then it explains the criteria used to select specific market street locations within Kolkata, and why Gariahat Market and New Market were chosen. It then describes each site in detail, one after the other, covering their history, land use, street morphology, vendor distribution, and pedestrian movement patterns. After that, it identifies the specific survey spots within each site, explains why those spots were selected, and describes what makes each one distinct. Finally, it provides a comparative overview of both sites, and a brief note on the regulatory context - specifically, what the Street Vendors Act 2014 requires, and what is actually happening at these two locations.

All morphological data presented in this chapter is based on field measurement conducted during the primary survey phase of this study in 2025. All historical information is sourced from published records, census data, and the existing academic and grey literature on Kolkata's urban development. References are provided at the end of the chapter.

3.2 Why Kolkata?

India has dozens of cities where the conflict between street vendors and pedestrians plays out every day. The question of why this study focuses on Kolkata, rather than Delhi, Mumbai, or any other large city, deserves a clear answer. The reason is not arbitrary. Kolkata presents a combination of conditions that makes it the most useful setting for this kind of study, and those conditions are explained below.

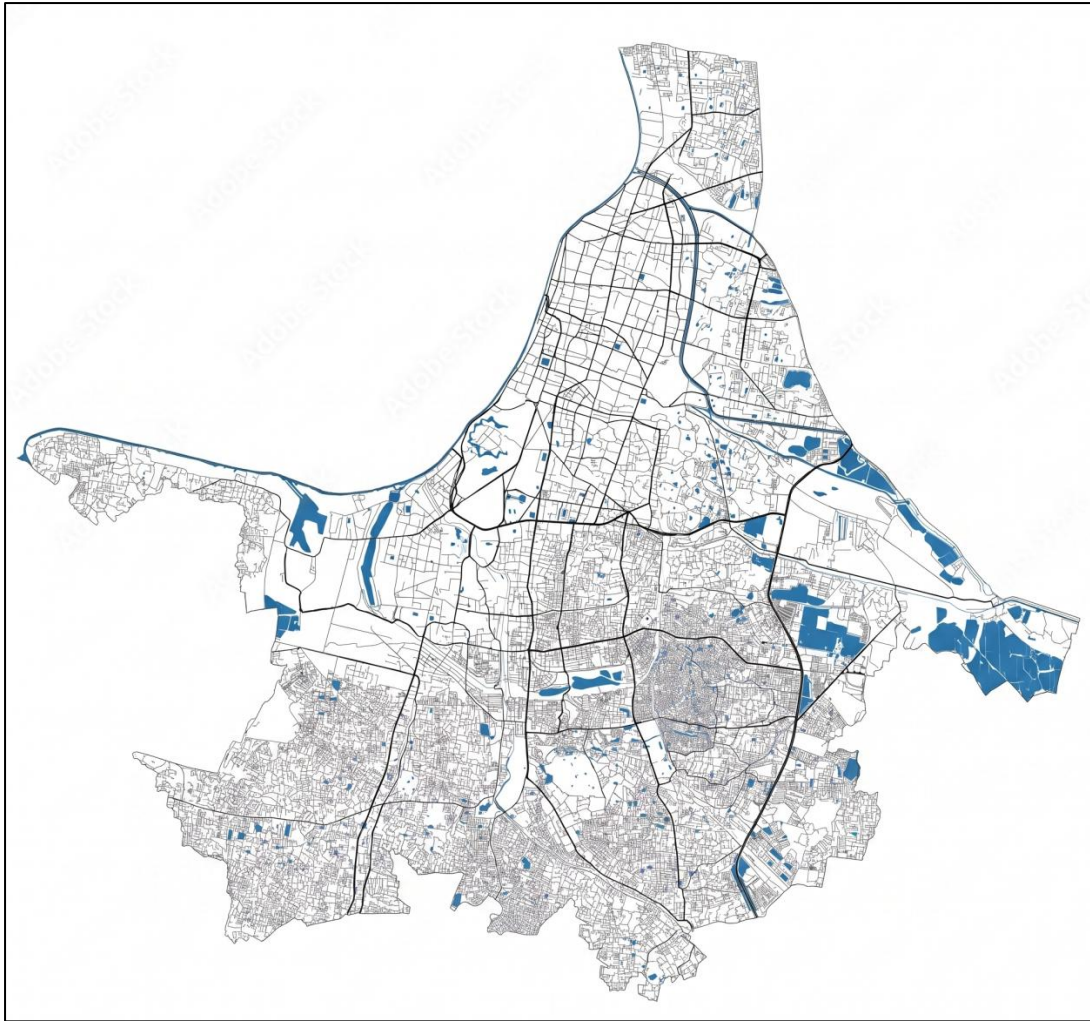


Figure 3.1: Kolkata Street Map

Source: Adobe Stock

3.2.1 Urban Structure and Street Character of Kolkata

Kolkata is the capital of West Bengal and the third most populous urban agglomeration in India, with a metropolitan population of approximately 14.8 million as recorded in the 2011 Census of India. The city occupies a relatively flat terrain on the eastern bank of the Hooghly River, a distributary of the Ganga. Its street network has deep colonial roots - Kolkata was the capital of British India from 1772 to 1911, and much of the city's older grid, particularly in the central and southern areas, was laid out during that period.

The morphology of Kolkata's streets reflects this layered history. In the colonial core, around areas like Chowringhee, Esplanade, and Park Street, streets tend to be wider, with more defined carriageways and footpaths. But as the city expanded southward

through the twentieth century, new market streets developed more organically, with narrower rights of way, dense building frontages, and less formal spatial organisation. Both types of streets are present in this study - and both types show the vendor-pedestrian conflict, though in different forms.

What makes Kolkata's street character particularly interesting from a planning perspective is the density and continuity of its commercial activity at street level. Unlike Delhi or Mumbai, where commercial zones are more segregated from residential ones, Kolkata's markets and residential neighbourhoods are deeply intertwined. A market street in Gariahat or near New Market is not a dedicated commercial district - it is a living street that is simultaneously a shopping destination, a transit corridor, a social space, and a workplace. This layering is what makes the conflict between vendors and pedestrians so difficult to resolve through simple spatial segregation.

3.2.2 History of Street Vending in Kolkata

Street vending in Kolkata is not a recent phenomenon, and it is not marginal. It has been part of the city's economic and spatial character since the colonial period. Colonial records from the nineteenth century describe street hawkers as a constant and sometimes contentious presence on Calcutta's streets. The large influx of refugees and migrants following the partition of Bengal in 1947 significantly expanded the vendor population, as street vending became one of the few available livelihoods for those with limited skills, capital, or formal employment options.

By the 1970s and 1980s, as Kolkata's formal industrial economy stagnated and large employers shed workers, the informal economy - including street vending - became structurally important rather than marginal. Vendors did not occupy the fringes of economic life; they were embedded in the centre of it. Today, Kolkata is estimated to have over 150,000 registered street vendors within KMC's jurisdiction, with the actual number, including unregistered vendors, likely significantly higher.

This long history of vending means that vendor territorial claims in Kolkata are deeply entrenched. A vendor who has been at the same spot for twenty or thirty years has not just built a business - they have built a social identity, a customer network, and an informal legal claim that is recognised by those around them even if not by the

formal system. This makes the conflict in Kolkata both more visible and more complex than in cities where vending is a newer or more fluid phenomenon.

3.2.3 Kolkata's Pedestrian Dependency

Kolkata is, by Indian standards, an unusually pedestrian-dependent city. Rates of private car ownership are lower in Kolkata than in comparably sized Indian cities. A very large share of daily trips - particularly for middle- and lower-income residents - are made by walking, public buses, metro rail, and tram. The Kolkata Metro, one of the oldest in India, carries hundreds of thousands of passengers daily, and many of those passengers walk significant distances to and from stations.

This pedestrian dependency means that the quality of footpaths in Kolkata is not just an aesthetic or convenience issue - it is a basic mobility infrastructure issue. When a footpath is impassable, it is not merely inconvenient. It forces people onto the road, where they are at risk from motorised traffic. In a city where so many people walk so much of the time, a failed footpath is a failed piece of essential urban infrastructure. This is precisely why the vendor-pedestrian conflict in Kolkata deserves serious planning attention - and why it was chosen as the setting for this thesis.

3.3 Site Selection Criteria

3.3.1 Criteria Used for Site Selection

The selection of study sites was guided by five criteria. These criteria were developed prior to the field phase of the study, based on a review of the literature on street vending and pedestrian conflict, and on the objectives of the research.

The first criterion was visibility of conflict. The site had to be one where vendor-pedestrian conflict is clearly and consistently visible - not occasional or seasonal, but a daily, measurable reality. This ensures that the data collected is representative of the conflict pattern, not an anomaly.

The second criterion was pedestrian volume. The site needed to have a high and sustained volume of pedestrian traffic across the survey period. A site with very low pedestrian footfall would not produce meaningful conflict data.

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS

The third criterion was vendor presence and variety. The site needed to have a substantial and diverse vendor population, including fixed, semi-mobile, and mobile vendors, so that the typology-based analysis could be conducted.

The fourth criterion was morphological diversity. To address Objective 3 of the study - assessing how street morphology shapes conflict - the two sites needed to have meaningfully different physical characteristics: different right-of-way widths, different edge conditions, different node configurations.

The fifth criterion was accessibility and feasibility. The sites needed to be accessible for a seven-hour continuous field survey, and it needed to be possible to conduct counts and observation without undue interference.

Table 3.1: Site Selection Criteria and How Each Site Meets Them

Criterion	Gariahat Market	New Market
Visibility of Conflict	High - vendors occupy footpath edge continuously; pedestrians regularly spill onto road	Very high - perimeter lanes almost entirely blocked; carriageway used by most pedestrians
Pedestrian Volume	High - arterial road serving south Kolkata; heavy pedestrian traffic throughout the day	Very high - central location near Esplanade and metro; one of the busiest pedestrian zones in the city
Vendor Presence and Variety	Over 3,000 hawkers; mix of fixed cloth/saree stalls, food carts, mobile vendors	Dense vendor presence on all perimeter streets; mix of fixed shops spilling out, semi-mobile carts, mobile hawkers
Morphological Diversity	Wider arterial (ROW 22-24 m); linear street pattern; defined footpath edges	Narrower perimeter lanes (ROW 10-14 m); enclosed market building at centre; complex node intersections
Accessibility and Feasibility	Open public street; survey spots accessible throughout the day	Open public street; slightly more crowded but manageable for field survey

Source: Research Design, 2025

3.3.2 Justification for Choosing Gariahat Market and New Market

Gariahat Market, located in the Ballygunge area of south Kolkata along Gariahat Road, is one of the most prominent open-air market streets in the city. It is a linearly evolved market that developed organically along a major arterial road. The vendors

here are primarily sellers of textiles, sarees, garments, and fashion accessories, with a significant presence of food vendors, fruit stalls, and flower sellers. The footpath along Gariahat Road has been almost entirely colonised by vendors on both sides, leaving pedestrians with a very narrow corridor, often less than one metre, and frequently pushing them onto the road.

New Market - formally Sir Stuart Hogg Market, established in 1874 on Lindsay Street, Dharmatala - is the oldest and most historically significant formal market building in Kolkata. But the study here is not about the interior of the market building; it is about the streets that surround it. The perimeter lanes around New Market - particularly the stretch of Lindsay Street along the market's south face, and the lanes on its eastern and western flanks - are among the most congested pedestrian environments in the city. These streets are narrow, enclosed by tall buildings on both sides, and host a dense and continuous vendor presence that leaves almost no usable footpath corridor. They provide a sharp morphological contrast with Gariahat: narrower, more enclosed, more complex in their node structure, and significantly more intense in their conflict.

Together, these two sites give this study the morphological range it needs. Gariahat represents the wider arterial commercial street where conflict is driven primarily by vendor encroachment of a formal footpath. New Market represents the narrow perimeter lane of a heritage market building, where the conflict is more enclosed, the stakes for both vendors and pedestrians are higher, and the planning challenges are correspondingly more complex.

SITE A - GARIAHAT MARKET

3.4 Site A: Gariahat Market

3.4.1 Location and Historical Background

Gariahat is a major commercial locality in the southern part of Kolkata, falling within the Ballygunge neighbourhood. It is centred on the Gariahat crossing, the junction of Gariahat Road and Rashbehari Avenue, one of the busiest intersections in south Kolkata. The study area for Site A is a stretch of Gariahat Road running approximately 400 metres north and south of the Gariahat crossing, with a secondary focus on the adjacent stretch of Rashbehari Avenue.

Gariahat Road itself is approximately 9.3 kilometres long, running from Ballygunge Phari in the north to its junction with Prince Anwar Shah Road and Raja S.C. Mullick Road near Jadavpur in the south. The road has served as a significant north-south arterial in south Kolkata since the colonial period, when it was a semi-rural pathway connecting the southern fringes of the city to its commercial core.

The market at Gariahat began as a small neighbourhood bazaar in the nineteenth century and expanded significantly after independence, particularly through the 1950s and 1970s, as the Ballygunge area grew into one of Kolkata's most desirable middle-class residential neighbourhoods. By the 1980s, the Gariahat market had become one of the largest open-air markets in the city, drawing customers from across south Kolkata and beyond. The Dakshinapan Shopping Centre, established nearby by the Kolkata Improvement Trust, and the subsequent development of other retail establishments along the road, further consolidated Gariahat's status as the principal shopping destination of south Kolkata.

Today, Gariahat hosts over 3,000 hawkers along its main stretch, selling primarily textiles, sarees, garments, bangles, cosmetics, food, and flowers. The market operates every day of the week, from approximately 9 in the morning to 9 in the evening, with the peak period of both vendor activity and pedestrian footfall falling between 11 in the morning and 7 in the evening.

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS



Figure 3.2: Gariahat Market Location Map

Source: Kolkata Municipal Corporation (KMC) & OpenStreetMap Contributors, generated using QGIS.

3.4.2 Description of the Streets Covered

The field walk at Gariahat was conducted along a continuous stretch of Gariahat Road, covering the section from the southern end near Niti Chatterjee Sarani northward all the way through the Gariahat Crossing and the flyover area. The entire route runs along Gariahat Road, which is the single primary commercial street of this study site. The walk begins in the southern section of the market stretch, where Gariahat Road is lined on both sides with saree and textile vendors operating from semi-mobile stalls, and proceeds northward through the progressively busier part of the market toward the Gariahat Crossing.

As the walk proceeds northward, vendor density increases and the footpath narrows progressively. The stretch approaching the Gariahat Crossing is where conditions are most severe, with vendors from both sides of the road converging at the busiest node. The Gariahat Crossing is a major four-way signalised junction where Gariahat Road meets Rashbehari Avenue to the west, Hindustan Road to the north-west, and roads leading toward Kasba Highway and Ballygunge Gardens Road to the east. At and

immediately around this crossing, the flyover structure casts the footpath below into partial shade, and its pillar bases have become informal anchor points for vendor structures. The walk ends in the northern section just beyond the crossing, where the market continues but vendor density begins to thin slightly away from the node. The two survey spots selected along this walk - Spot 1 in the southern section near Ballygunge Gardens Road, and Spot 2 at the Gariahat Crossing node - capture both the mid-stretch condition and the node-level conflict along this single continuous route on Gariahat Road.

3.4.3 Land Use and Commercial Character

The land use along the Gariahat Road study stretch is predominantly mixed commercial-residential, with ground floors occupied by retail shops and upper floors by residential apartments and offices. The shop frontages are dense and continuous, with almost no breaks or setbacks along the main road stretch. Behind the shops, the residential fabric of Ballygunge continues - a mix of apartment buildings, older two-storey structures, and some institutional uses including schools and clinics.

The commercial character of the street is defined by the textiles and garment trade. Both sides of the road are lined with shops selling sarees, dress materials, and fashion accessories. Directly in front of these shops, and spilling onto the footpath, are the informal vendors who sell similar goods at lower prices - often the same kinds of sarees, fabrics, and bangles as the shops behind them. This layering of formal and informal commerce, one directly in front of the other, is a defining characteristic of Gariahat, and it is one of the central features of the spatial conflict documented in this study.

Table 3.2: Land Use Summary - Gariahat Market Study Area

Land Use Category	Description	Proportion (Approx.)
Ground floor retail (formal)	Textile shops, garment stores, jewellery, food outlets, pharmacies	65%
Informal vending (footpath)	Saree/garment stalls, flower vendors, food carts, mobile hawkers	Continuous on both footpaths
Residential (upper floors)	Apartments, older bungalows, mixed use	20%

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Land Use Category	Description	Proportion (Approx.)
Institutional	Schools, clinics, government offices	10%
Circulation / Transport	Gariahat bus terminus, auto-rickshaw stands, footpath	5%

Source: Field Observation, 2025

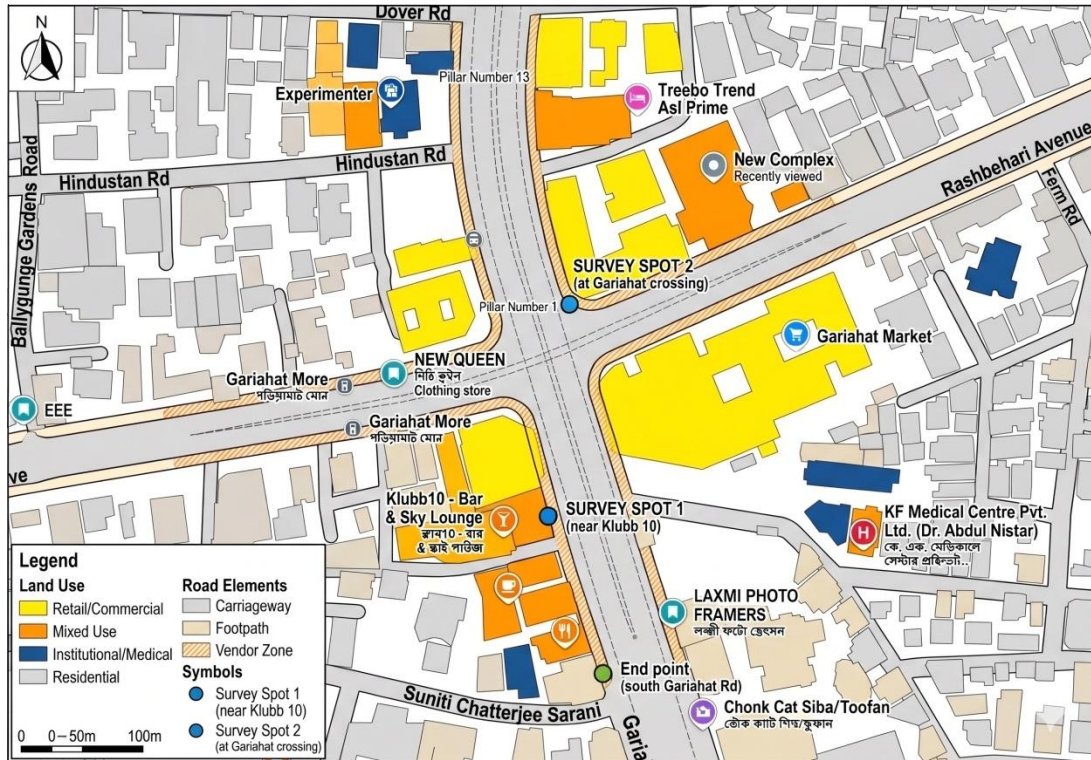


Figure 3.3: Land Use and Vendor Distribution Map, Gariahat Study Stretch

Source: Primary Field Survey (2026); Map rendered using GIS-style tools based on URDPFI guidelines.

3.4.4 Street Morphology and Right of Way

The morphological character of Gariahat Road at the study stretch is that of a medium-to-wide urban arterial. The total Right of Way (ROW) of Gariahat Road in this section is approximately 22 to 24 metres. This figure is based on field measurement of the distance from building face to building face across the road, which is the conventional measure of effective ROW in a fully built-up urban street context.

Within this ROW, the breakdown of the cross-section is as follows. The carriageway, measured kerb to kerb, is approximately 14 to 16 metres wide and accommodates

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two-way vehicular traffic, though the lane markings are largely absent and the actual usable carriageway width varies. On each side of the carriageway, a raised footpath was constructed. The designed footpath width on the eastern side of the road is approximately 3.5 metres. On the western side, it is approximately 3.0 metres.

However, the effective pedestrian walking width - the unobstructed portion of the footpath actually available for through-pedestrian movement - is dramatically narrower. During field survey, the effective walking width at the worst points along the study stretch was measured at between 0.4 and 0.8 metres. This is the result of vendor structures, both fixed stalls and semi-mobile carts, occupying between 2.0 and 2.8 metres of the footpath from its outer edge. The National Urban Transport Policy 2006 specifies a minimum unobstructed pedestrian walking width of 1.8 metres on commercial streets. The measured widths at Gariahat fall far short of this standard.

Table 3.3: Street Morphology - Gariahat Road (Study Stretch)

Element	Measured / Estimated Value	Standard / Benchmark (NUTP 2006)
Total Right of Way (ROW)	22-24 m (building face to building face)	-
Carriageway width	14-16 m (two-way, mixed traffic)	-
Designed footpath width (East side)	3.5 m	Min. 1.8 m clear
Designed footpath width (West side)	3.0 m	Min. 1.8 m clear
Vendor occupation depth (typical)	2.0-2.8 m from footpath edge	0 m (no vendor in walking corridor)
Effective pedestrian walking width	0.4-0.8 m at worst points	Min. 1.8 m
Road overflow observed	Yes - pedestrians walk on carriageway	Should be zero

Source: Field Measurement, Primary Survey 2025; NUTP 2006

The street's node structure at the Gariahat crossing is a four-way signalised junction. The crossing is complex, with high volumes of buses, auto-rickshaws, private vehicles, and pedestrians all converging. The footpath condition worsens significantly near the crossing, as vendors cluster around it - correctly identifying it as the highest-

footfall node on the street. The flyover that spans the Gariahat crossing further reduces ambient street lighting at the crossing level, and the structure of the flyover's piers creates additional informal vendor attachment points.

3.4.5 Existing Vendor Distribution

Vendors at Gariahat can be classified into three broad typologies, following the classification in the Street Vendors Act 2014 (Section 2(1)(a)): stationary vendors with fixed or semi-permanent structures; semi-mobile vendors with carts or tarpaulin setups that are moved at the end of each day; and mobile vendors who carry their goods and move between customers.

Stationary vendors occupy the most desirable positions - directly along the footpath edge, in front of shops, or at corners near the crossing. These vendors have typically been at the same location for many years, and their structures (wooden platforms, metal frames, tarpaulin roofs) are substantial enough that they are clearly not moved daily. Their spatial footprint is the largest and most consistently present.

Semi-mobile vendors are the most numerous category at Gariahat. They arrive in the late morning, set up carts or folding tables, and dismantle in the evening. They occupy the outer two-thirds of the footpath in most sections. Their presence peaks between 12 noon and 6 in the evening.

Mobile vendors - primarily those selling snacks, water, or small accessories - move through the residual corridor between vendor stalls, competing with pedestrians for the same narrow space.

Table 3.4: Vendor Typology Distribution - Gariahat Market (Observed)

Vendor Type	Typical Location on Footpath	Goods Sold	Estimated Share
Stationary (fixed structure)	Footpath edge; near crossing nodes	Sarees, garments, bangles, shoes	25%
Semi-mobile (daily setup)	Middle of footpath; between fixed stalls	Fabrics, food, flowers, cosmetics	55%
Mobile (itinerant)	Moving through residual corridor	Snacks, water, small accessories	20%

Source: Field Observation, Primary Survey 2025; Classification per Street Vendors Act 2014, Section 2(1)(a)

3.4.6 Pedestrian Pattern and Movement

Pedestrian movement at Gariahat is high-volume and bidirectional. The street is a major pedestrian corridor connecting the Gariahat bus terminus and auto-rickshaw stands to the market area, to the Dakshinapan Shopping Centre further south, and to the residential areas of Ballygunge, Hindustan Park, and Ekdalia. It is also an important through-route connecting residential areas in the south to the metro station at Rabindra Sarobar and the bus interchange at Gariahat crossing itself.

The key pedestrian behaviour documented during field observation is road overflow: the movement of pedestrians from the footpath onto the carriageway. This happens because the footpath is impassable - the effective walking width is below the minimum needed for two adults to pass each other. Pedestrians adapt by walking in the narrow strip between the kerb and the moving vehicles. At peak hours, this strip can hold two or three parallel lines of pedestrians walking in opposite directions, while vehicles - primarily buses and auto-rickshaws - pass within less than a metre on their right.

Pedestrians also exhibit other adaptation behaviours: reversing direction when faced with a bottleneck; stepping off the footpath temporarily to let someone pass; standing against a shop front to let a surge of people through; and using the road even when the footpath is technically passable, simply because it is faster. These behaviours reflect a street environment that has broken down as a pedestrian space.

3.4.7 Photo Documentation



Figure 3.4: Vendors in Footpath



Figure 3.5: Effective pedestrian walking width at worst point



Figure 3.6: Pedestrians walking on carriageway



Figure 3.7: Vendor cluster at crossing node

Source: Field Photographs, Primary Survey 2025

SITE B - NEW MARKET (SIR STUART HOGG MARKET)

3.5 Site B: New Market (Sir Stuart Hogg Market)

3.5.1 Location and Historical Background

New Market, formally known as Sir Stuart Hogg Market, is located in the Dharmatala area of central Kolkata, near Chowringhee Road and Esplanade. It is one of the most historically significant and architecturally distinctive market buildings in India. The market building itself is not the subject of this study; the study focuses on the streets that run around it. The two streets that form the core of this site analysis are Chowringhee Road, running along the western side of the market complex, and Bertram Street, running along the eastern side.

The market was designed by architect Richard Roskell Bayne of the East India Railway Company and opened on 1 January 1874, as Kolkata's first municipal market. It was originally intended as a market for the British colonial population, deliberately separated from the native bazaars of the city. The building is a striking example of Victorian Gothic architecture, featuring red and yellow polychrome brickwork, pointed arches, ornamental facades, shuttered arched windows, and a prominent clock tower. Named after Sir Stuart Hogg, the then-Chairman of Calcutta

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Corporation, it was officially renamed Sir Stuart Hogg Market in 1903, though the original nickname 'New Market' has persisted in common use.

Today, the market building houses over 2,000 stalls selling everything from clothing and electronics to meat, seafood, flowers, and confectioneries. Alongside the formal shops inside the building, the perimeter streets have been progressively colonised by informal vendors over many decades. These vendors now outnumber the formal shops in visible street-level presence, and the perimeter lanes around New Market are among the most congested pedestrian environments in Kolkata.

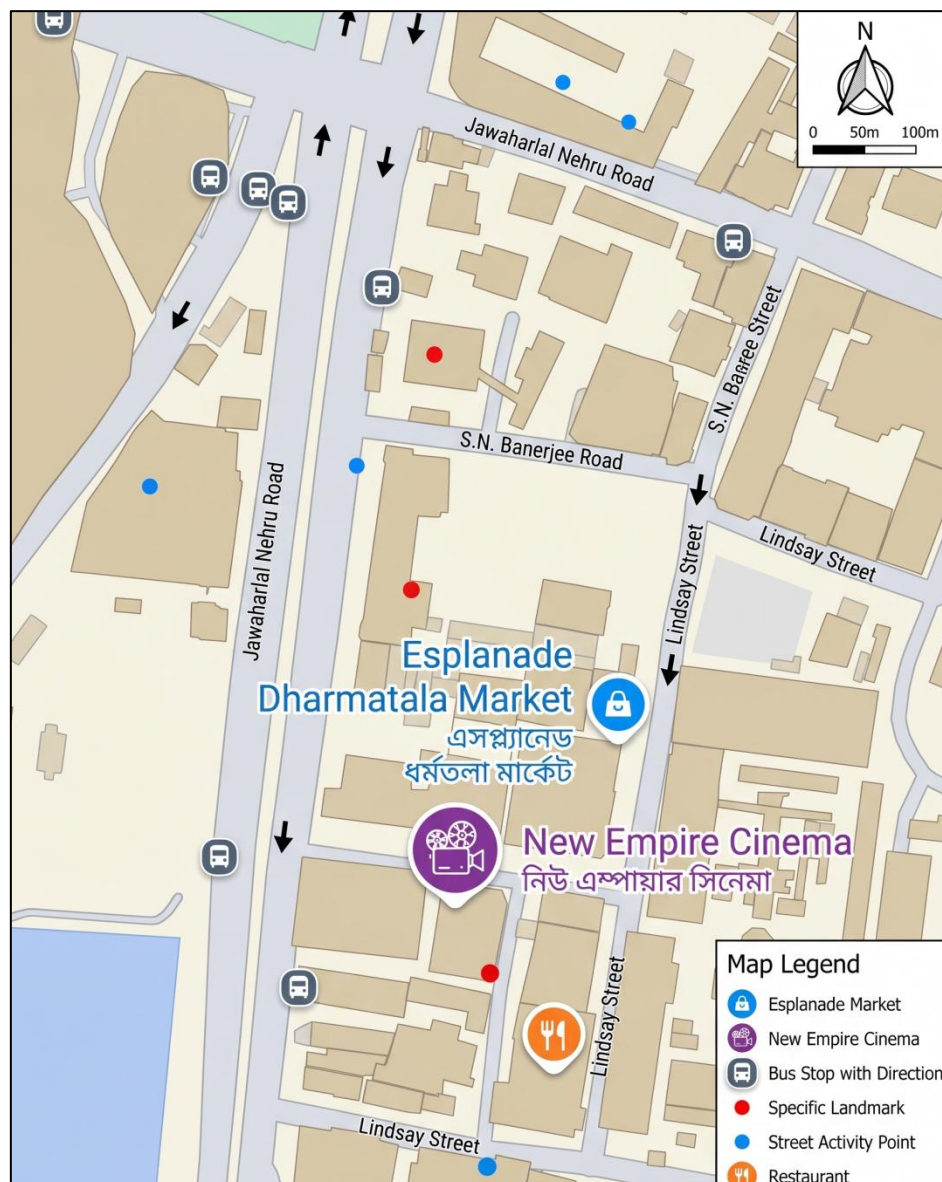


Figure 3.8: Land Use and Vendor Distribution Map, New Market Study Stretch

Source: Kolkata Municipal Corporation (KMC) & OpenStreetMap Contributors, generated using QGIS.

3.5.2 Description of the Streets Covered

The field walk at New Market covered the perimeter street network surrounding the Sir Stuart Hogg Market building on four sides, forming a circuit around the entire market complex. The walk begins on Chowringhee Road, which runs along the western face of the market building and is the widest and most prominent of all the streets covered in this site. Chowringhee Road functions as the primary arrival point for pedestrians approaching New Market from the Esplanade bus terminus, the nearby metro station, and the central business district to the south. It is a busy multi-lane arterial and the footpath here, though wider in design than the other perimeter streets, is heavily occupied by vendors selling garments and fashion accessories from the market building side.

From Chowringhee Road, the walk turns onto SN Banerjee Road, which runs along the northern edge of the market area and connects the western approach to the north-eastern side. SN Banerjee Road is a significant road in central Kolkata and carries heavy through-traffic as well as pedestrians heading toward the market's northern entrances. The walk then turns south onto Bertram Street, which runs along the eastern side of the market complex and connects SN Banerjee Road in the north to the Lindsay Street area in the south. Bertram Street is narrower and more enclosed than Chowringhee Road. At the point where Bertram Street meets Hogg Street - which is the second survey spot of this site - the footpath is almost entirely taken up by fruit juice shops and food stalls, leaving pedestrians with almost no space to walk and forcing most of them onto the road. The walk then continues along Hogg Street and the surrounding lanes back toward the starting point, completing the circuit. Together, these streets form a complete loop around the market complex, and the sharp difference between the wider Chowringhee Road and the cramped Bertram Street and Hogg Street stretch is one of the most interesting findings of the site walk.

3.5.3 Land Use and Commercial Character

The land use around New Market is almost entirely commercial in character. The market building itself occupies a large footprint at the centre. The buildings along Chowringhee Road on the western side are mostly multi-storey commercial structures with hotels, restaurants, large retail shops, and offices. Bertram Street on the eastern side is narrower and has a more mixed character - smaller shops, food stalls, and

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service establishments. The area draws a very wide range of users, from daily shoppers and office workers to tourists and out-of-town visitors, given its central location near Esplanade and the metro.

What distinguishes the commercial character of New Market from Gariahat is the diversity and density of goods on offer. While Gariahat is primarily a textiles market, New Market sells almost everything. This diversity attracts a more varied customer base, from local residents doing daily grocery shopping to tourists browsing the flower market, and the mix of pedestrian types and purposes makes the spatial conflict here more layered and complex.

Table 3.5: Land Use Summary - New Market Study Area

Land Use Category	Description	Proportion (Approx.)
Formal market (indoor)	Sir Stuart Hogg Market building - 2,000+ stalls	Central anchor
Ground floor retail (perimeter)	Hotels, restaurants, garment shops, electronics, gift stores	60%
Informal vending (perimeter streets)	All vendor types - food, flowers, garments, accessories, phone repairs	Continuous on all perimeter streets
Hospitality / Hotels	Budget hotels and guesthouses serving tourists	20%
Institutional / Civic	Dharmatala bus terminus nearby; Esplanade Metro proximity	10%

Source: Field Observation, 2025

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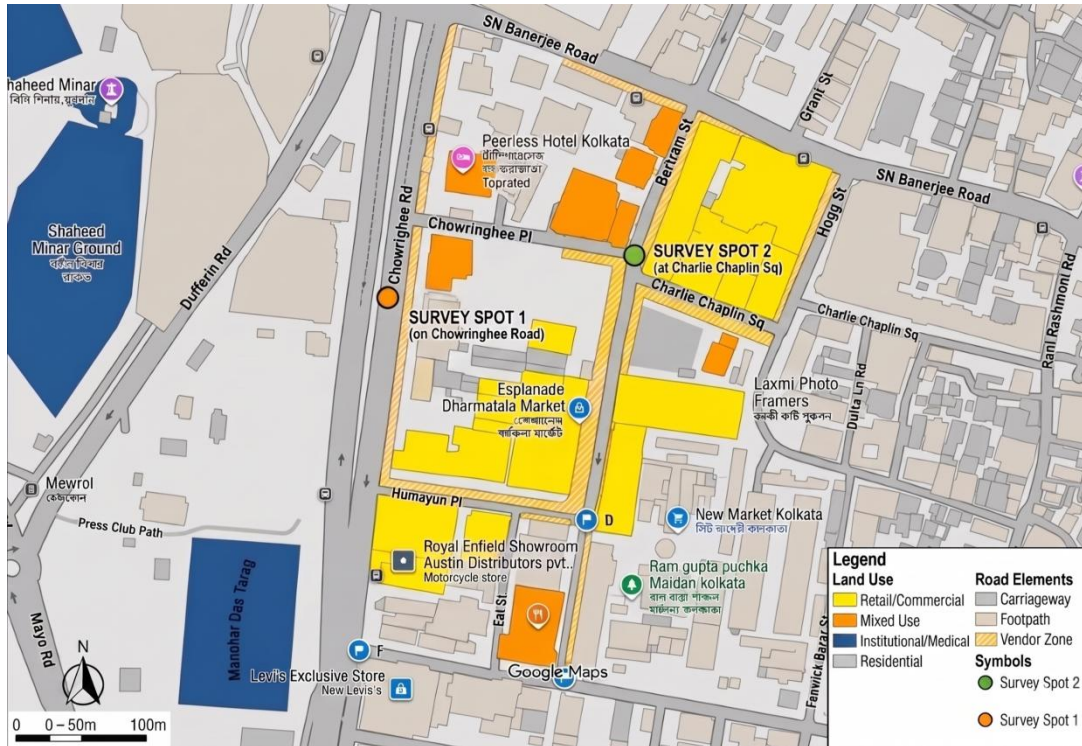


Figure 3.9: Land Use and Vendor Distribution Map, New Market Study Stretch

Source: Primary Field Survey (2026); Map rendered using GIS-style tools based on URDPFI guidelines.

3.5.4 Street Morphology and Right of Way

The two streets at the New Market site are very different from each other in terms of their physical size and character, which is part of what makes this site interesting to study. Chowringhee Road is one of the most important arterial roads in Kolkata - a wide, multi-lane road that carries a huge volume of traffic every day. Bertram Street, on the other hand, is a narrow secondary lane on the eastern side of the market building. Together, they give this site a range of morphological conditions that is quite different from the single-street character of Gariahat.

Chowringhee Road is a 4 to 6 lane arterial in this section, with a total Right of Way of approximately 30 to 35 metres - making it one of the widest roads in central Kolkata. The carriageway alone is approximately 18 to 22 metres wide, accommodating multiple lanes of two-way traffic including buses, cars, and auto-rickshaws. On the eastern side of Chowringhee Road - the side facing the New Market complex - there is a footpath of approximately 3.5 to 4.5 metres by design. But vendor stalls selling garments and accessories have colonised most of this footpath from the market

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building side, reducing the effective walking width to 0.50 to 0.70 metres at the worst points.

Bertram Street is a very different story. It is a narrow secondary lane on the eastern side of the market, with a total Right of Way of approximately 8 to 10 metres. The carriageway is just about 5 to 6 metres wide - enough for one-way movement of auto-rickshaws and delivery vehicles. The footpath on either side was designed at roughly 1.5 to 2.0 metres, but in practice it is almost entirely taken over by fruit juice shops and food stalls. Most pedestrians simply walk on the road because there is no real footpath left to use.

So the contrast between the two streets is stark. Chowringhee Road has a lot of total space, but vendor occupation of the footpath is still severe enough to push pedestrians onto the road. Bertram Street has very little total space to begin with, and the food stalls make the footpath unusable. Both streets fail pedestrians, but for different reasons - and this is precisely what makes studying both of them together so useful.

Table 3.6: Street Morphology - New Market Study Streets (Chowringhee Road and Bertram Street)

Element	Chowringhee Road (Western Approach)	Bertram Street (Eastern Side)	Standard (NUTP 2006)
Total ROW	30-35 m	8-10 m	-
Carriageway width	18-22 m (two-way, multi-lane)	5-6 m (one-way)	-
Designed footpath width (building side)	3.5-4.5 m (east side, facing market)	2.0 m	Min. 1.8 m clear
Designed footpath width (west / Maidan side)	3.0-4.0 m (Maidan side; mostly clear)	1.5-2.0 m per side	Min. 1.8 m clear
Vendor occupation depth	2.5-3.5 m from market building side (garment/accessory stalls)	Near-total footpath occupation by fruit juice shops and food stalls	0 m
Effective pedestrian walking width	0.50-0.70 m (worst points, market-side footpath)	0.40-0.65 m; most pedestrians use road	Min. 1.8 m

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Element	Chowringhee Road (Western Approach)	Bertram Street (Eastern Side)	Standard (NUTP 2006)
Road overflow observed	Yes - consistent overflow onto carriageway at peak hours	Yes - severe and near-constant; most pedestrians walk on road	Should be zero

Source: Field Measurement, Primary Survey 2025; NUTP 2006

The node where Chowringhee Road meets the approach to New Market's main entrance is one of the busiest pedestrian convergence points in central Kolkata. Shoppers arriving from the Esplanade direction, people exiting the market building, and through-pedestrians all converge here simultaneously. On Bertram Street, the junction with Hogg Street creates a similar convergence point on a much smaller scale - but because the street is so narrow, the impact on pedestrian movement is just as disruptive.

3.5.5 Existing Vendor Distribution

The vendor distribution across the two streets at New Market is quite different in character. On Chowringhee Road, vendors are primarily selling garments, bags, fashion accessories, and similar goods - they are set up along the market-facing footpath in a continuous line of semi-mobile stalls. On Bertram Street, the vendor character changes entirely: the footpath here is occupied mostly by fruit juice shops and small food stalls, which take up most of the available footpath space and are the main reason pedestrians end up walking on the road.

On Chowringhee Road, the vendor presence is largely semi-mobile in nature - stalls that are set up each morning and taken down in the evening, selling garments, bags, and fashion items. On Bertram Street, the food and juice stalls are more fixed in character, with some having been at the same spot for years. In both cases, the vendors have no designated zone, no Certificate of Vending, and no formal spatial allocation. They simply occupy whatever space is available - and that space happens to be the footpath.

Table 3.7: Vendor Typology Distribution - New Market Perimeter Streets (Observed)

Vendor Type	Typical Location	Goods Sold	Estimated Share
Stationary (fixed/semi-permanent)	Against market building wall; near entry gates	Flowers, garments, food, accessories	40%
Semi-mobile (daily setup)	Street-side footpath; perimeter building frontage	Fashion, phone accessories, toys, snacks	45%
Mobile (itinerant)	Moving through residual shared space	Water, snacks, mobile goods	15%

Source: Field Observation, Primary Survey 2025; Classification per Street Vendors Act 2014, Section 2(1)(a)

3.5.6 Pedestrian Pattern and Movement

Pedestrian movement at New Market is very high in volume and comes from multiple directions. Chowringhee Road sees a constant stream of people walking along its eastern footpath - approaching the market from the Esplanade end, exiting after shopping, or simply passing through as part of a longer route. Bertram Street, while narrower and less prominent, is also well-used as a connecting route between the SN Banerjee Road area and the market's eastern entrances, and by local residents and workers who use it as a daily through-route.

On Chowringhee Road, the main problem is that the footpath on the market-facing side is so blocked by vendor stalls that pedestrians are forced to walk right at the edge of a very busy multi-lane road. It is a wide road with fast-moving traffic - buses, taxis, auto-rickshaws - and having pedestrians walking alongside it with barely any buffer is a real safety concern. On Bertram Street, the problem is different: the street is so narrow and the food stalls take up so much of the footpath that walking on the road is basically the only option. The road here is narrower, so the conflict between pedestrians and vehicles, though less dramatic, is just as constant.

What is striking about this site, compared to Gariahat, is how differently the same problem plays out on two streets just a short distance apart. On Chowringhee Road, you have a very wide road where pedestrians should theoretically have plenty of space - but vendor occupation of the footpath has taken most of it away. On Bertram Street, the space was always limited and vendors have used up what little there was.

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Both streets fail pedestrians, but the scale and character of that failure are quite different, which makes them a genuinely useful pair to study together.

3.5.7 Photo Documentation



Figure 3.10: Chowringhee Road footpath: Vendor Stalls



Figure 3.11: Pedestrian Standing in front of shops



Figure 3.12: Bertram Street: Juice Stalls blocking footpath

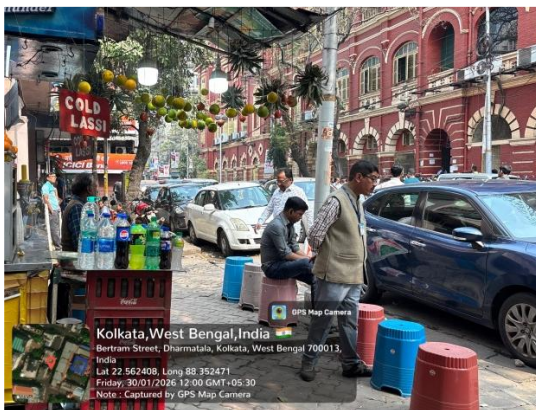


Figure 3.13: Pedestrians walking on Road on instead of Footpath

Source: Field Photographs, Primary Survey 2025

3.6 Comparative Overview of Both Sites

The table below places the two study sites side by side across the key dimensions analysed in this chapter. The comparison makes clear that while both sites experience severe vendor-pedestrian conflict, they experience it in different forms and for different spatial reasons. Gariahat is a conflict of encroachment on a wide arterial - there is enough total space, but it has been taken over. New Market is a conflict of saturation in a narrow enclosure - there simply is not enough space for both vendors

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and pedestrians even if the vendors are arranged optimally. These differences have direct implications for the kinds of planning interventions that are likely to work at each site.

Table 3.8: Side-by-Side Comparison - Gariahat Market and New Market

Parameter	Site A: Gariahat Market	Site B: New Market
Location	Gariahat Road, Ballygunge, South Kolkata	Chowringhee Road (western approach) and Bertram Street (eastern side), near New Market, Dharmatala, Central Kolkata
Street Type	Wide urban arterial (linear)	Wide arterial (Chowringhee Road) + narrow secondary lane (Bertram Street)
Total ROW	22-24 m	Chowringhee Rd: 30-35 m; Bertram St: 8-10 m
Carriageway Width	14-16 m (two-way)	Chowringhee Rd: 18-22 m (two-way, multi-lane); Bertram St: 5-6 m (one-way)
Designed Footpath Width	3.0-3.5 m per side	Chowringhee Rd: 3.5-4.5 m (market side); Bertram St: 1.5-2.0 m per side
Effective Pedestrian Width	0.4-0.8 m (worst points)	Chowringhee Rd: 0.50-0.70 m; Bertram St: 0.40-0.65 m (most pedestrians on road)
Vendor Occupation Depth	2.0-2.8 m from footpath edge	Chowringhee Rd: 2.5-3.5 m (garment stalls, market-facing footpath); Bertram St: near-total footpath occupation by food stalls
Dominant Vendor Type	Semi-mobile (daily setup) + stationary	Stationary (fixed) + semi-mobile
Primary Goods Sold	Textiles, sarees, garments, food	Chowringhee Rd: garments, bags, fashion accessories; Bertram St: fruit juice and food stalls
Historical Origin	Organically evolved street market, 19th century	Planned colonial market building (1874), perimeter informally colonised over time
Node Complexity	Single major crossing (Gariahat intersection)	Chowringhee Rd: major arterial junction at market entrance; Bertram St: narrower junction with Hogg Street
Dominant Conflict Form	Road overflow - pedestrians walk on carriageway	Chowringhee Rd: road overflow onto busy multi-lane carriageway; Bertram St:

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Parameter	Site A: Gariahat Market	Site B: New Market
		near-total footpath blockage; pedestrians walk on road
Heritage Sensitivity	Low - no protected structures in immediate study area	High - listed Victorian Gothic building (Sir Stuart Hogg Market); conservation considerations
Pedestrian Volume	High (arterial corridor)	Very high (central city; multiple pedestrian generators)
NUTP 2006 Standard Met?	No - effective width well below 1.8 m	No - effective width well below 1.8 m

Source: Field Measurement and Observation, Primary Survey 2025; NUTP 2006

3.7 Survey Spots: Explanation

3.7.1 Why Two Spots Per Site Were Chosen

Within each study site, two specific survey spots were selected for the primary data collection - the pedestrian movement count and the standing-in-front-of-shops count. Two spots per site, rather than one, were chosen for two reasons. First, it allows within-site variation to be captured: even within a single market street, conflict conditions can vary significantly depending on proximity to a node, vendor density, or street width. Second, it gives the analysis more granularity and allows patterns to be confirmed across more than one data point within the same spatial context.

The selection of spots within each site was based on the following criteria: maximum visibility of the conflict (both vendor occupation and pedestrian response); feasibility of continuous counting over seven hours; and meaningful morphological or functional difference between the two spots within the same site.

3.7.2 Spot 1 and Spot 2 - Gariahat Market

Spot 1: Gariahat Road - Southern Section (Near Ballygunge Gardens Road Junction)

Spot 1 is located on Gariahat Road, on the stretch south of the Gariahat Crossing, in the vicinity of the Ballygunge Gardens Road junction. This portion of Gariahat Road runs beneath and immediately south of the Gariahat flyover structure, and is one of the most heavily vendored sections of the entire road. The footpath at this location is lined on both sides with semi-mobile saree and fabric stalls running almost without a

break. During the field survey, the effective pedestrian walking width at this spot was measured at 0.45 to 0.65 metres. The proximity to the Gariahat Crossing means that pedestrian flows here are extremely high, as this stretch serves as the primary approach corridor from the south for shoppers heading to the main market area. The road overflow percentage recorded at this spot was among the highest in the study, with a significant share of pedestrians at peak hours found to be walking on the carriageway rather than the footpath.

Spot 2: Gariahat Road - Northern Section (Near Gariahat Crossing / Flyover)

Spot 2 is located on Gariahat Road, on the northern section, immediately at and around the Gariahat Crossing node where the flyover begins. This is the busiest and most complex point on the entire study stretch. The crossing brings together pedestrian flows from Gariahat Road from the south, from Rashbehari Avenue from the west, from Hindustan Road from the north-west, and from Kasba Highway and Ballygunge Gardens Road from the east. The vendor density at this spot is slightly higher in terms of variety - in addition to saree and fabric stalls, there are food carts, flower vendors, and mobile hawkers clustered around the node. The flyover's pillar bases have become informal attachment points for vendor structures. During the field survey, the effective pedestrian walking width at this spot ranged from 0.55 to 0.80 metres. Comparing this spot with Spot 1 to its south allows the study to assess how the node condition at the crossing amplifies or modifies the conflict pattern observed along the mid-stretch of the road.

Table 3.9: Survey Spot Details - Gariahat Market

Parameter	Spot 1 (South, Near Ballygunge Gardens Rd.)	Spot 2 (North, At Gariahat Crossing / Flyover)
Location	Gariahat Road, south of Gariahat Crossing, near Ballygunge Gardens Road junction	Gariahat Road, at Gariahat Crossing node, near flyover base
Footpath width (designed)	3.5 m	3.0 m
Effective walking width (survey)	0.45-0.65 m	0.55-0.80 m
Dominant vendor type	Semi-mobile (saree/fabric stalls)	Stationary (established structures)

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Parameter	Spot 1 (South, Near Ballygunge Gardens Rd.)	Spot 2 (North, At Gariahat Crossing / Flyover)
Node proximity	Moderate - south of main crossing; near Ballygunge Gardens Road junction	High - at Gariahat Crossing; convergence of Gariahat Rd, Rashbehari Ave, Hindustan Rd, Kasba Highway
Direction of pedestrian flow	Bidirectional; high convergence near crossing	Bidirectional; multi-directional convergence at crossing; highest volume point
Key conflict feature	High road overflow; semi-mobile stalls block most of footpath on approach to crossing	Extreme congestion at crossing node; flyover pillars used as vendor anchor points; highest pedestrian convergence

Source: Field Observation, Primary Survey 2025

3.7.3 Spot 1 and Spot 2 - New Market

Spot 1: Chowringhee Road - Western Approach to New Market

Spot 1 is located on Chowringhee Road, on the stretch running along the western face of the New Market complex. Chowringhee Road is one of the most prominent and heavily trafficked streets in central Kolkata, and this section functions as the primary pedestrian approach to New Market from the Esplanade and metro station direction. The footpath here is wider by design than the perimeter lanes on the other sides of the market, but vendor stalls selling garments, bags, and fashion accessories have colonised a large portion of the footpath width from the market building side. The effective pedestrian walking width at this spot was measured at 0.50 to 0.70 metres during the field survey. The volume of pedestrians here is very high, as this is the first point of arrival for most shoppers approaching from the south and west. Road overflow onto the carriageway is consistent and clearly visible throughout the peak survey hours.

Spot 2: Bertram Street / Hogg Street - North-East Side of New Market

Spot 2 is located at the junction of Bertram Street and Hogg Street, on the north-east side of the New Market complex. This is a noticeably different stretch compared to Chowringhee Road. The street is narrow and feels quite enclosed, with buildings pressing in from both sides. The vendors here are not selling clothes or fashion items - this stretch is mostly occupied by a handful of fruit juice shops and small food stalls, which have set up right on the footpath. Because of this, the footpath is almost

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entirely blocked. There is barely any room to walk. Most people simply give up on the footpath and walk on the road instead, which is the dominant pattern observed here during the field survey. The effective pedestrian walking width at this spot is very small - in many places less than half a metre - and the road overflow is severe and near-constant throughout the day. Even though the number of vendors here is fewer than at Spot 1, the narrowness of the street means the impact on pedestrian movement is just as bad, if not worse. The street feels cramped, and the people walking through it are clearly uncomfortable.

Table 3.10: Survey Spot Details - New Market

Parameter	Spot 1 (Chowringhee Road, Western Approach)	Spot 2 (Bertram Street / Hogg Street, North-East)
Location	Chowringhee Road, western approach to New Market complex	Bertram Street / Hogg Street junction, north-east side of market
Footpath width (designed)	3.0-3.5 m (Chowringhee Road; wider arterial footpath)	1.8-2.2 m (Bertram St / Hogg St; narrower perimeter lane)
Effective walking width (survey)	0.50-0.70 m	0.40-0.65 m
Dominant vendor type	Semi-mobile garment and bag vendors; stalls along market building side of footpath	Fruit juice shops and small food stalls on footpath; no garment or fashion vendors
Node proximity	High - primary approach from Esplanade and metro; first point of arrival for most shoppers	Moderate-high - junction of Bertram St and Hogg St; convergence of north-east approach routes
Direction of pedestrian flow	Bidirectional; very high volume; primary approach from Esplanade direction	Bidirectional; moderate-high; mix of shoppers and through-pedestrians
Key conflict feature	Road overflow onto Chowringhee Road carriageway; high pedestrian volume with narrow usable footpath	Footpath almost blocked by food stalls; most pedestrians walk on the road; severe and near-constant road overflow

Source: Field Observation, Primary Survey 2025

3.8 Regulatory Context at Both Sites

The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014 sets out a clear set of requirements for how vending should be managed at both study sites. Section 21 and Section 22 of the Act require that vending zones be demarcated in all streets and public spaces, with a minimum unobstructed pedestrian corridor maintained alongside the vendor space. Section 10 requires that a comprehensive survey of vendors be conducted every five years. Section 23 requires that every registered vendor receive a Certificate of Vending specifying their allocated location. Section 36 prohibits eviction without prior provision of an alternative vending space.

At both Gariahat Market and New Market, none of these requirements have been met in full. No vending zones have been demarcated. No certificates of vending have been issued at the study sites. The KMC Town Vending Committee, while constituted and meeting periodically, has not exercised its spatial planning mandate at the specific streets covered by this study. The most recent hawker survey (2024) registered over 50,000 hawkers across the KMC jurisdiction and found approximately 14,000 who have no designated spot and are encroaching on pedestrian space - a category that would include many of the vendors observed at both study sites. The Kolkata Municipal Corporation has conducted periodic clearance drives at both locations. The pattern observed at both sites - vendors removed during a drive and returning to the same spots within days - is consistent with the prediction of Section 36: when no alternative space is provided, eviction without rehabilitation simply does not work. The regulatory framework exists and is, in principle, adequate. The implementation has not followed.

Table 3.11: SVA 2014 Implementation Status at Both Study Sites

SVA 2014 Requirement	Status at Gariahat Market	Status at New Market
Vendor survey every 5 years (Section 10)	No updated survey at site level. Last city-wide survey: 2024 (partial); before that, 2012.	Same - no site-specific survey. City-wide 2024 survey includes area.
Vending zones demarcated (Sections 21-22)	Not demarcated. Vendors occupy full footpath without defined zone.	Not demarcated. Perimeter streets entirely unregulated.

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SVA 2014 Requirement	Status at Gariahat Market	Status at New Market
Certificate of Vending issued (Section 23)	Not issued. All vendors operate informally.	Not issued. All vendors operate informally.
Minimum pedestrian corridor maintained	No. Effective width 0.45-0.80 m against standard of 1.8 m.	No. Effective width 0.35-0.70 m against standard of 1.8 m.
No eviction without rehabilitation (Section 36)	Periodic clearance drives conducted. No alternative space provided. Vendors return.	Same - periodic drives; no alternative; vendors return.
TVC active at site level	TVC constituted at KMC level. No spatial role specific to these streets.	Same - no site-specific TVC intervention documented.

Source: Field Observation 2025; KMC Notification MS/591/2023-24 (January 2024); Street Vendors Act 2014

3.9 Summarisation

This chapter has described the two study sites in detail and explained the rationale for their selection. Kolkata was chosen as the study city because of its deep and long-standing street vending culture, its unusual pedestrian dependency, and the visibility and severity of the vendor-pedestrian conflict in its market streets. Within Kolkata, Gariahat Market and New Market were selected because they represent two contrasting morphological conditions - a wide arterial and a narrow perimeter lane - while both showing severe and measurable conflict.

At Gariahat, the conflict takes the form of road overflow: the footpath has been occupied to the point where pedestrians are forced onto the carriageway of a busy arterial road. The total right of way is adequate - approximately 22 to 24 metres - but the distribution of that space is entirely unregulated, and the footpath, which should provide 3.0 to 3.5 metres of clear walking space, is reduced to less than 0.8 metres at its worst points.

At New Market, the conflict is more intense and more complex. The streets are inherently narrower - 10 to 14 metres of total right of way - and the vendor presence is if anything denser, with both sides of every perimeter lane occupied. The result is a squeeze-and-press condition that is qualitatively more dangerous than road overflow, particularly for elderly pedestrians, those with mobility impairments, and anyone

carrying goods. The heritage status of the market building adds a layer of planning complexity that does not exist at Gariahat.

In both cases, the Street Vendors Act 2014 has not been implemented in the ways it requires. No vending zones have been demarcated, no certificates of vending issued, and the Town Vending Committee has not played an active spatial planning role at either street. The regulatory failure is not a failure of the law - the law is well designed - but of implementation. This is the gap that the proposals in Chapter Five are designed to help close.

Chapter Four turns to the primary survey data collected at the four survey spots across these two sites. It analyses the pedestrian movement count data, the road overflow percentages, and the standing-in-front-of-shops counts across all seven hours of the survey day, and uses these findings to answer the four research objectives of the study.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the data analysis and findings from the primary field survey conducted at the two study sites documented in Chapter 3. The findings are organized around five core research objectives:

- Identification of areas of spatial conflict.
- Analysis of how vending typology impacts pedestrian flows.
- Assessment of the role of street morphology in intensifying conflict.
- Evaluation of temporal variations in conflict intensity.

The survey methodology, site selection, and data collection approach are fully documented in Chapter 3. This chapter moves directly into the analysis of what that data reveals.

An important point about perspective: this chapter is written from the viewpoint of a neutral technocrat - someone who is neither a vendor nor a pedestrian, and who does not assign blame to either group. Both street vendors and pedestrians have legitimate claims over public street space. The task of this chapter is to understand those claims through data, identify where they can coexist, and identify where they cannot, without prejudice. The analytical framework draws on the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014 (SVA 2014), spatial theory, and ground-level empirical data.

Note on Data Sources

All percentage figures in this chapter are derived from primary survey counts conducted in 2025. Charts and tables are proportional visualisations of this data. Map placeholders indicate locations reserved for GIS outputs in subsequent phases of the research.

4.2 Study Area Characterisation

Both study sites are fully described in Chapter 3. What follows here is a quick summary of just the physical dimensions that matter most for reading the conflict data in this chapter.

4.2.1 Site A - Gariahat Market

Gariahat is a wide arterial road with a planned footpath of about 2.5 m on each side. In practice, vendors occupy 1.2 to 1.8m of that footpath, leaving pedestrians a walkable gap of just 0.7 to 1.0 m at peak hours - well below the 1.8 m minimum under NUTP 2006. No vending zones have been formally marked out here under SVA 2014 §22.

4.2.2 Site B - New Market (Hogg Market)

New Market's perimeter streets are significantly narrower than Gariahat. Spot 1, at the main entry node, has a street width of 12-14 m but vendor clusters reduce walkable space to under 0.8 to 1m. Spot 2 is a narrow back lane of just 8-10m - so tight that even without vendors it would struggle to handle heavy pedestrian traffic. At this spot, vendors leave less than 0.4 m of walkable footpath, effectively forcing everyone onto the road. No vending regulation exists at either spot.

4.3 Vendor Typology and Spatial Occupation

A central objective of this research is to understand how different vendor typologies affect pedestrian movement in different ways. Chapter 3 (Sections 3.4.4 and 3.5.4, Tables 3.4 and 3.7) documents the observed vendor distribution at each site. This section uses that typology framework to analyse how each vendor type generates conflict - specifically, how the conflict impact of each type is reflected in the primary survey data.

4.3.1 Vendor Typology Classification

The table below cross-references the three SVA 2014 vendor categories (documented in Chapter 3, Sections 3.4.4 and 3.5.4) against their conflict impact at the survey sites, focusing on what each type does to pedestrian flow and why it matters for the data analysis in Sections 4.4 to 4.6.

Table 4.1: Vendor Typology Classification and Spatial Characteristics

Type	Definition	Conflict Impact	Estimated Share	SVA 2014 Classification
Fixed Vendors	Permanent structures (tables, racks, tarpaulins)	Creates irreversible baseline encroachment.	55% of vendors	Stationary vendor §2(1)(a)(i)

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	occupying 1.2-1.8 m footpath depth. Present 09:00-22:00 hrs.	Defines the permanent conflict zone at peak and off-peak hours alike.		
Semi-Mobile Vendors	Foldable carts or tables on wheels. Occupy habitual territories within a 10-20 m range. Peak: 12:00-14:00 and 17:00-20:00 hrs.	Temporal layering - intensifies conflict at the precise hours when pedestrian density is also at maximum. Primary driver of nodal bottlenecks.	30% of vendors	Mobile vendor §2(1)(a)(ii)
Mobile Vendors	Hawkers with baskets or head-loads. Move dynamically with pedestrian flow. No fixed territorial claim.	Diffuse corridor encroachment. Individually lowest impact but high aggregate density creates unpredictable obstruction.	15% of vendors	Itinerant vendor §2(1)(a)(iii)

Source: Primary Field Observation, 2025; Street Vendors Act 2014, §2(1)(a)

The key planning implication of this typology analysis is this: fixed vendors (55% of the total) are the primary source of the permanent baseline conflict. Their encroachment cannot be managed by simply changing the time of day - it is a spatial design problem. Semi-mobile vendors (30%) make a difficult situation even worse by adding to congestion at exactly the busiest pedestrian hours. Mobile vendors (15%), though the most flexible, contribute to diffuse obstruction when their density is high.

4.3.2 Spatial Occupation Patterns Observed on Site

The specific vendor distribution at each site - which types of vendors occupy which locations, and at what estimated shares - is documented in Chapter 3 (Tables 3.4 and 3.7 for Gariahat and New Market respectively). This section focuses on the four spatial occupation patterns that emerge from combining the typology data with the survey spot conditions, as these patterns directly explain the conflict intensity data presented in Section 4.4.

Table 4.2: Spatial Occupation Patterns - Conflict Data Link

Pattern	Description	Primary Site	Primary Survey Finding	Conflict Severity
Pattern A	Single-side edge vendor strip facing the carriageway	Gariahat Spot 1	Footpath narrowed by 1.2-1.8 m; pedestrians walk single-file; road overflow 32.8%	HIGH
Pattern B	Two-sided opposing strips (shop-front to carriageway)	Gariahat Spot 2	Footpath < 0.8 m; road overflow 33.2%; standing peak 91 persons @ 16-17h	HIGH
Pattern C	Nodal clustering at entry and intersection points	New Market Spot 1	Pedestrian flow breakdown at nodes; road overflow 37.3%; peak total 1,030 persons/hr @ 17-18h	CRITICAL
Pattern D	Radial spillover - mixed direction, no clear ROW	New Market Spot 2	Road overflow 64.9% average across all survey hours; footpath essentially non-functional	CRITICAL

Source: Primary Field Survey and Field Observation, 2025. Vendor typology shares per site: see Chapter 3, Tables 3.4 (Gariahat) and 3.7 (New Market).

An important planning insight from this pattern analysis: while fixed vendors dominate Patterns A and B and require a spatial design solution (edge-zone demarcation), semi-mobile and mobile vendors are the primary drivers of Pattern C and D and are, in theory, manageable through temporal approaches - but only after the fixed vendor problem is first addressed through design. The SVA 2014 §2(1)(a) classification framework provides the legal basis for typology-sensitive allocation, but has not been applied at either site.

4.4 Primary Survey - Pedestrian Movement Data

The pedestrian movement count survey was the primary data collection method of this study. Counts were conducted at two spots per site (four spots in total) across seven hourly slots from 11:00 to 18:00 hrs. At each spot, pedestrians were counted by direction (Right-to-Left and Left-to-Right) and by mode (footpath user or road-user/overflow). This generated 56 directional counts per site, enabling both temporal and spatial analysis.

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The most important derived metric is the Road Overflow Percentage - the proportion of all pedestrians who are forced to walk on the carriageway (the road meant for vehicles) because the footpath has been made impassable by vendor occupation. A road overflow percentage above 30% is considered high. Above 55% is considered a crisis condition, indicating that the footpath has essentially ceased to function for pedestrians.

4.4.1 Gariahat Market - Spot 1 (Linear Mid-block)

Spot 1 at Gariahat is situated along the middle section of the market street - the typical linear, mid-block condition. The survey recorded pedestrian movement in both directions on both the footpath and the road across all seven hours.

Table 4.3: Gariahat Spot 1 - Hourly Pedestrian Count by Mode (11:00-18:00 hrs)

Hour	FP R→L	FP L→R	Total FP	Road R→L	Road L→R	Total Road	Road Overflow %
11-12	44	79	123	68	31	99	45%
12-13	88	84	172	43	39	82	32%
13-14	78	81	159	32	47	79	33%
14-15	93	89	182	36	35	71	28%
15-16	88	91	179	49	33	82	31%
16-17	94	118	212	37	29	66	24%
17-18	71	97	168	62	43	105	38%
TOTAL			1,195			584	32.8%

Source: Primary Survey - Pedestrian Movement Count, Gariahat Spot 1, 2025 | FP = Footpath; R→L = Right to Left; L→R = Left to Right

The data from Spot 1 reveals a clear double-peak pattern. Road overflow is highest in the morning slot (11-12h: 44.6%) and again in the evening slot (17-18h: 38.5%), with a relative drop in the mid-afternoon hours (as low as 23.7% at 16-17h, and 28.1% at 14-15h). This pattern reflects the morning shopping rush and the post-work evening surge. The mid-afternoon lull, when conflict is lower, is important from a planning perspective - it shows that coexistence between vendors and pedestrians is possible when pedestrian volumes are moderate.

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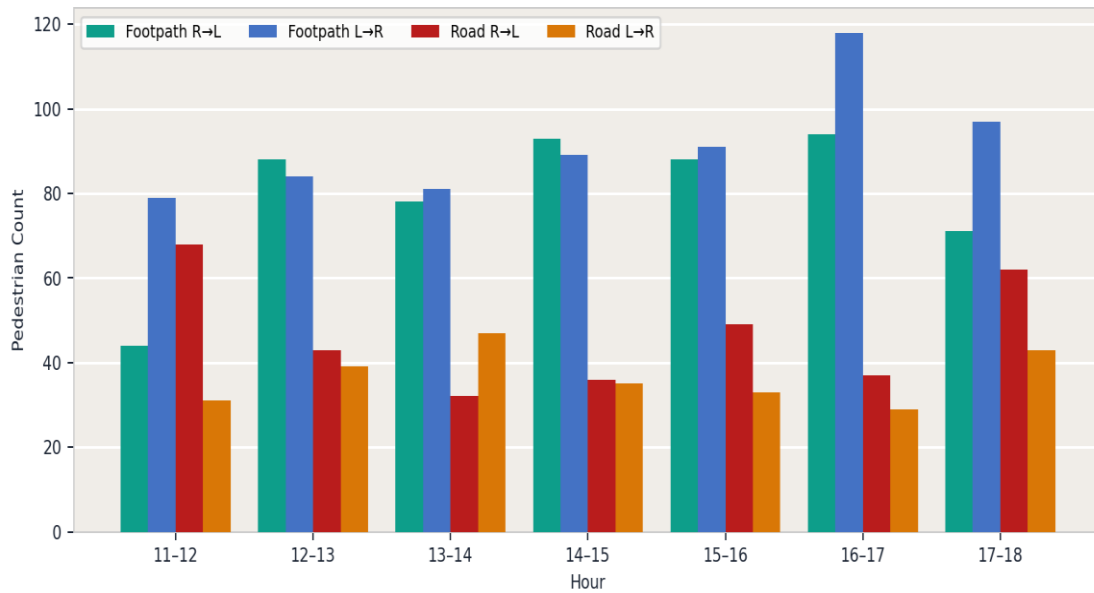


Figure 4.1: Gariahat Spot 1 - Directional Pedestrian Count per Hour

Source: Primary Survey

4.4.2 Gariahat Market - Spot 2 (Linear Edge Junction)

Spot 2 at Gariahat is located at a wider section of the street near a road junction. Despite the larger total street width, the two-sided vendor occupation on both sides results in a narrower effective pedestrian corridor than at Spot 1. More vendors face each other across the footpath, compressing the walkable space to under 0.8 metres.

Table 4.4: Gariahat Spot 2 - Hourly Pedestrian Count by Mode (11:00-18:00 hrs)

Hour	FP R→L	FP L→R	Total FP	Road R→L	Road L→R	Total Road	Road Overflow %
11-12	60	144	204	23	28	51	20%
12-13	133	98	231	76	49	125	35%
13-14	104	97	201	68	44	112	36%
14-15	111	103	214	59	66	125	37%
15-16	159	107	266	119	23	142	35%
16-17	113	131	244	74	36	110	31%
17-18	102	149	251	86	49	135	35%
TOTAL			1,611			800	33.2%

Source: Primary Survey - Pedestrian Movement Count, Gariahat Spot 2, 2025

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A striking finding at Spot 2 is that total footpath volumes are much higher here (1,611) than at Spot 1 (1,195), yet the road overflow percentage is nearly identical (33.2% vs. 32.8%). This tells us that simply having more pedestrians does not automatically mean a higher proportion spill onto the road - the slightly wider street at Spot 2 absorbs some additional pedestrian volume before overflow occurs. However, in absolute numbers, more people are actually being pushed onto the road at Spot 2 (800 persons) than at Spot 1 (584 persons), confirming that the conflict is more severe there in real-world terms.

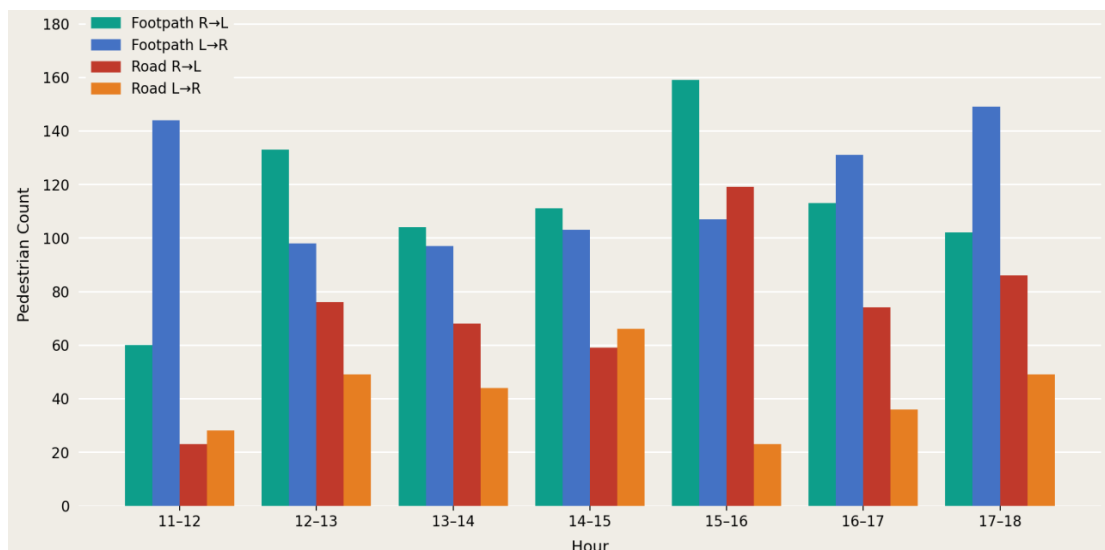


Figure 4.2: Gariahat Spot 2 - Directional Pedestrian Count per Hour

Source: Primary Survey

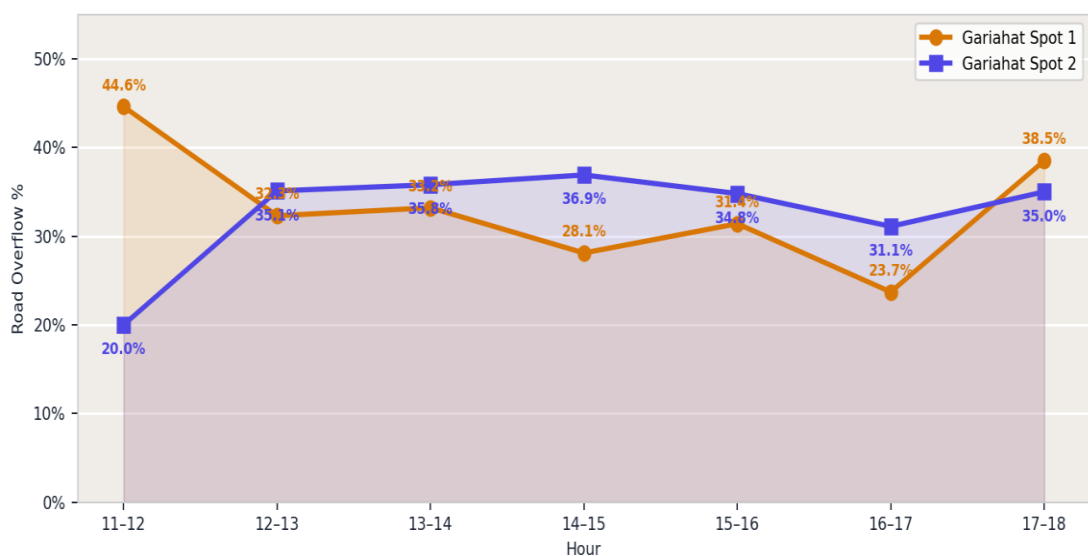


Figure 4.3: Gariahat -Road Overflow % by Hour (Spot 1 vs Spot 2)

Source: Primary Survey

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Another notable difference: at Spot 1, the lowest overflow hour is 16-17h. At Spot 2, the lowest overflow is at 11-12h (only 20%), and from noon onwards it remains relatively flat between 31-37%. This 'sustained flat' pattern is caused by the presence of fixed vendors who create a constant level of encroachment regardless of how many pedestrians are present.

4.4.3 New Market - Spot 1 (Colonial Entry Node)

New Market Spot 1 is at the primary entrance to the market, where pedestrians arrive from multiple directions simultaneously. The colonial-era radial market layout means that pedestrian desire lines - the natural paths people want to walk - converge from several angles onto a single node, which is exactly where vendors have clustered most densely. This spot records the highest absolute pedestrian volumes in the entire study.

Table 4.5: New Market Spot 1 - Hourly Pedestrian Count by Mode (11:00-18:00 hrs)

Hour	FP R→L	FP L→R	Total FP	Road R→L	Road L→R	Total Road	Road Overflow %
11-12	161	99	260	139	62	201	44%
12-13	242	123	365	146	101	247	40%
13-14	201	168	369	116	97	213	37%
14-15	286	188	474	139	142	281	37%
15-16	322	231	553	106	124	230	29%
16-17	333	230	563	84	204	288	34%
17-18	283	315	598	198	234	432	42%
TOTAL			3,182			1,892	37.3%

Source: Primary Survey - Pedestrian Movement Count, New Market Spot 1, 2025

New Market Spot 1 recorded the highest single-hour pedestrian count in the study: 1,030 persons between 17:00 and 18:00 hrs. Even with a wider street ROW and planned access infrastructure, road overflow peaks at 41.9% during this evening hour - meaning that more than two in every five pedestrians at this spot were being forced onto the vehicle carriageway. The total footpath count of 3,182 is more than double any other spot in the study, confirming this location's status as the primary pedestrian concentration point.

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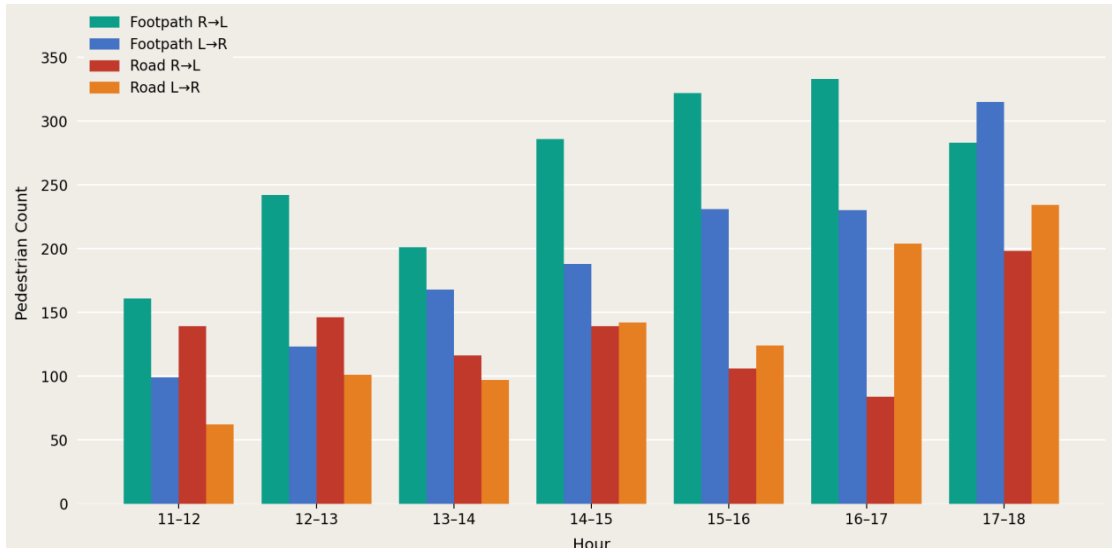


Figure 4.4: New Market Spot 1 - Directional Pedestrian Count per Hour

Source: Primary Survey

4.4.4 New Market - Spot 2 (Perimeter Lane)

New Market Spot 2 is the most severe conflict location in the entire study. It is a narrow perimeter lane on the western edge of the market, with a total street width of only 8 to 10 metres. Vendor clusters are positioned at the entry of the lane, and pedestrian movement occurs in multiple directions with no clear path. The survey data confirms that the road overflow at this spot is not caused by peak-hour pedestrian surges - it is a structural problem embedded in the physical layout of the lane itself.

Table 4.6: New Market Spot 2 - Hourly Pedestrian Count by Mode (11:00-18:00)

Hour	FP R→L	FP L→R	Total FP	Road R→L	Road L→R	Total Road	Road Overflow %
11-12	25	28	53	54	17	71	57%
12-13	46	31	77	98	36	134	64%
13-14	27	33	60	62	46	108	64%
14-15	36	29	65	78	63	141	68%
15-16	34	47	81	68	31	99	55%
16-17	26	21	47	79	22	101	68%
17-18	19	23	42	88	43	131	76%
TOTAL			425			785	64.9%

Source: Primary Survey - Pedestrian Movement Count, New Market Spot 2, 2025

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The data reveals a consistently high road overflow throughout the observation period, ranging from 55% to 76%, with a daily average of 64.9%. Notably, the overflow does not peak at a single rush hour but remains elevated across all time slots, with the highest overflow recorded in the 17–18 hrs slot (76%), indicating that pedestrian spill onto the road is a persistent structural condition rather than a time-specific surge. The total pedestrian count of 785 on the road far exceeds the 425 recorded on the footpath, confirming that the narrow 8–10 metre lane width and vendor obstructions render the footpath functionally inadequate throughout the day.

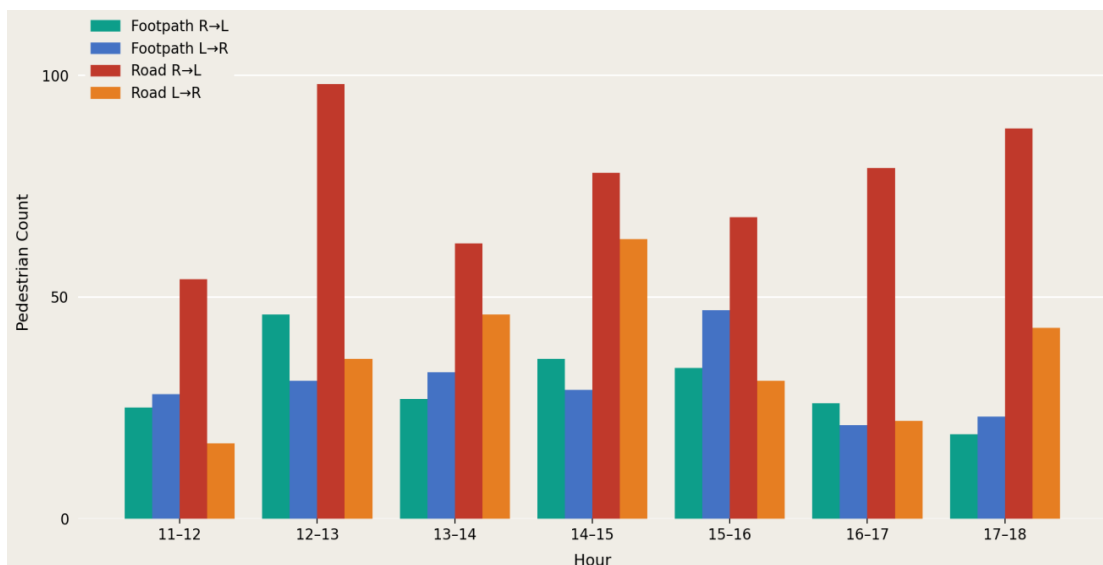


Figure 4.5: New Market Spot 2 - Directional Pedestrian Count per Hour

Source: Primary Survey

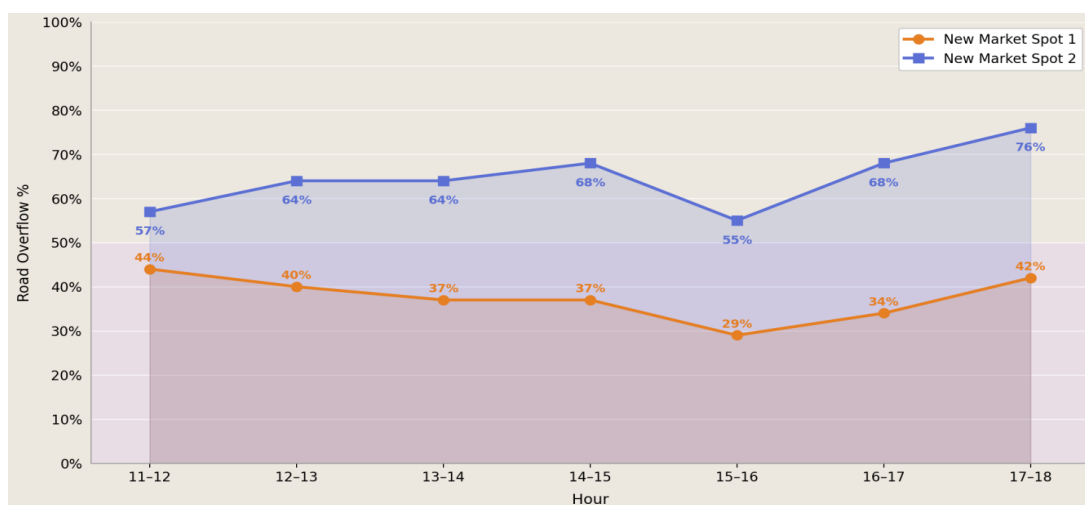


Figure 4.6: New Market - Road Overflow % by Hour (Spot 1 vs Spot 2)

Source: Primary Survey

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The figure compares hourly road overflow percentages between Spot 1 and Spot 2 at New Market, illustrating the relative severity of pedestrian encroachment on the carriageway across both locations throughout the survey period. While both spots exhibit significant overflow, Spot 2 consistently records higher overflow rates, reflecting its more constrained physical geometry and heavier vendor concentration along the perimeter lane.

4.4.5 Consolidated Road Overflow Summary

The table below brings together the data from all four survey spots, allowing for a clear comparison of conflict severity across both sites.

Table 4.7: Consolidated Road Overflow Summary - All Survey Locations

Survey Location	Total Footpath Count	Total Road Count	Road Overflow %	Peak Hour (& Overflow %)
Gariahat Spot 1	1,195	584	32.8%	17-18h (38.5%)
Gariahat Spot 2	1,611	800	33.2%	15-16h (35.8%)
New Market Spot 1	3,182	1,892	37.3%	17-18h (41.9%)
New Market Spot 2	425	785	64.9%	17-18h (75.7%)

Source: Primary Survey, 2025. Bold row = severest conflict zone in study.

Across all four spots combined, 4,061 out of a total of 10,474 pedestrians surveyed were forced to walk on the carriageway - a combined road overflow rate of 38.8%. This means that on an average survey day, nearly 4 in every 10 pedestrians at these market streets are sharing the road with vehicles because the footpath has been made inaccessible. New Market Spot 2 stands out as the extreme case - it is in a different category of conflict severity from the other three spots, with road users consistently outnumbering footpath users at almost every hour.

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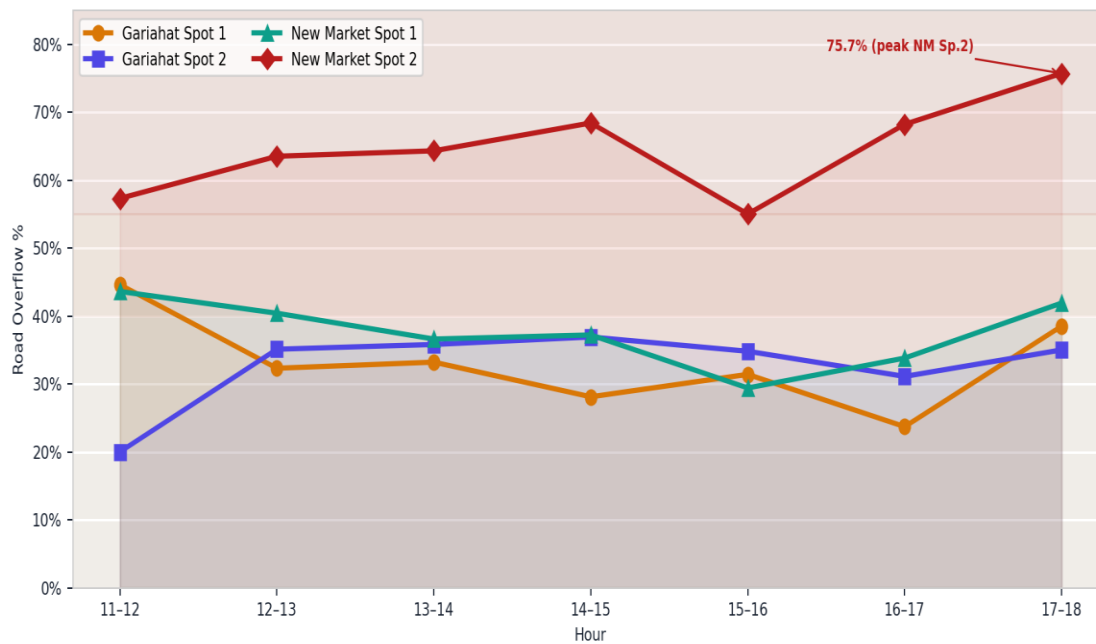


Figure 4.7: Road Overflow % by Hour – All Four Survey Spots

Source: Primary Survey

4.5 Standing-in-Front-of-Shops Survey

In addition to pedestrian movement counts, a 'standing-in-front-of-shops' count was conducted at all four survey spots. This count records the number of persons who are stationary in the pedestrian zone at each hour - people who are browsing, transacting with vendors, or waiting. These persons are neither moving along the footpath nor using the carriageway; they are occupying the contested zone in a static way.

This matters because the impact of standing persons on pedestrian flow is compounded. When large numbers of people are standing still in the same zone where moving pedestrians are trying to pass, it creates two simultaneous pressures on the limited space: stationary blockage and moving pressure. If this 'standing peak' occurs at the same hour as the 'road overflow peak,' it confirms that the conflict at that location is at its maximum intensity.

4.5.1 Data Table - All Locations

Table 4.8: Standing-in-Front-of-Shops Count - All Locations by Hour

Location	11-12	12-13	13-14	14-15	15-16	16-17	17-18	Total
Gariahat Spot 1	24	42	51	43	56	101	136	453
Gariahat Spot 2	44	31	59	64	78	91	68	435
New Market Spot 1	42	21	32	39	81	143	84	442
New Market Spot 2	12	27	34	28	21	35	22	179

Source: Primary Survey - Standing-in-Front-of-Shops Count, 2025.

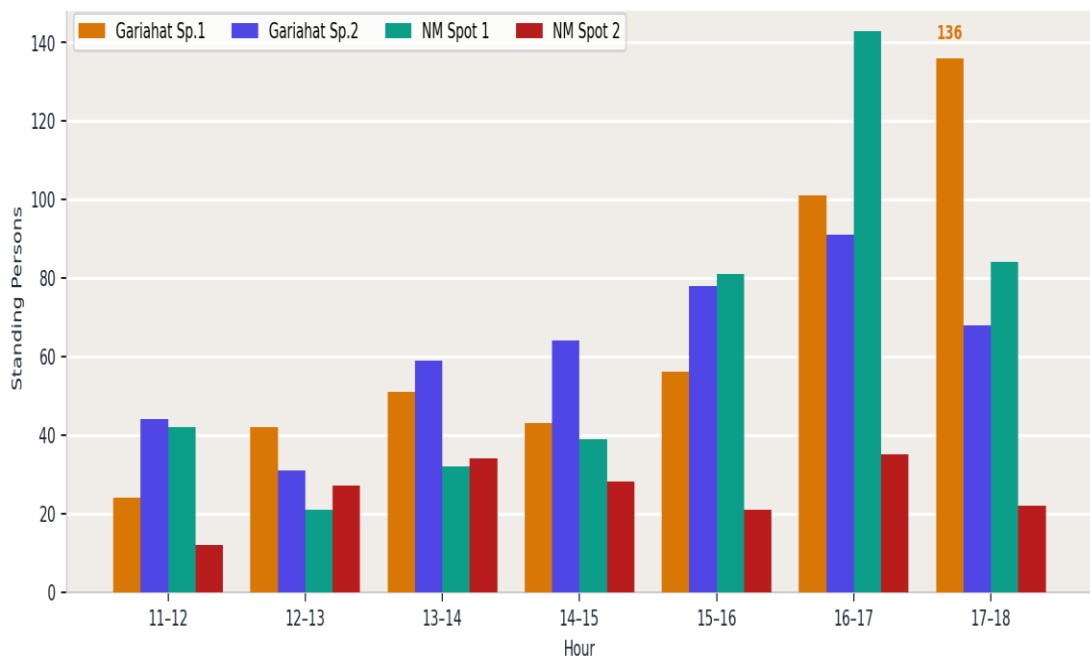


Figure 4.8: Standing in Front of Shops Count per Hour - All Four Survey Spots

Source: Primary Survey

4.5.2 Analysis and Interpretation

Table 4.9: Standing Survey Analysis - Key Findings by Location

Location	Total Standing	Peak Count	Peak Hour	Planning Interpretation
Gariahat Spot 1	453	136	17-18h	Peak standing co-occurs with peak road overflow (38.5%) - double-peak compounding. Footpath at maximum capacity at 17-18h.
Gariahat Spot 2	435	91	16-17h	Sustained afternoon-evening standing mirrors semi-mobile vendor density. Peak precedes road overflow peak by one hour.
New Market Spot 1	442	143	16-17h	Highest single-hour standing count in study. Single dominant peak driven by vendor activity - confirms vendor-pedestrian compounding at entry node.
New Market Spot 2	179	35	16-17h	Low standing count despite highest road overflow - shoppers cannot pause on footpath due to extreme congestion; displaced to road or out of the zone entirely.

Source: Primary Survey - Standing-in-Front-of-Shops Count, 2025

The standing survey reveals two distinct types of conflict situation. At Gariahat (both spots), high standing counts occur alongside high road overflow - this is a compounded conflict where the footpath is simultaneously crowded with stationary shoppers and overflowing with moving pedestrians. Both pressures are happening at the same time, in the same space.

At New Market Spot 2, the situation is qualitatively different. The road overflow is the highest in the study (64.9% average), but the standing count is the lowest (179 total). This tells us something important: the conflict at New Market Spot 2 is so severe that the footpath cannot support even stationary shoppers - people are being pushed out of the zone entirely. This is a more extreme form of conflict than simple compounding; it is a complete functional breakdown of the street.

4.6 Temporal Analysis - Conflict Intensity by Hour

One of the key questions of this research is whether vendor-pedestrian conflict is a problem at all hours of the day, or whether it is concentrated in specific time slots. If conflict is purely a peak-hour phenomenon, then time-based management strategies

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(such as restricting certain vendor types during peak hours) could be a viable solution. If conflict exists at all hours, then the problem is structural and requires spatial design intervention regardless of time management.

The primary survey data, collected across seven hourly slots (11:00 to 18:00 hrs), enables this temporal analysis. Road overflow percentage is used as the primary proxy for conflict intensity at each hour.

4.6.1 Temporal Conflict Matrix

Table 4.10: Temporal Conflict Matrix - Road Overflow % by Hour and Location

Location	11-12	12-13	13-14	14-15	15-16	16-17	17-18	Avg
Gariahat Sp.1	44.6%	32.3%	33.2%	28.1%	31.4%	23.7%	38.5%	32.8%
Gariahat Sp.2	20%	35.1%	35.8%	36.9%	34.8%	31.1%	35%	33.2%
New Market Sp.1	43.6%	40.4%	36.6%	37.2%	29.4%	33.8%	41.9%	37.3%
New Market Sp.2	57.3%	63.5%	64.3%	68.4%	55%	68.2%	75.7%	64.9%

Colour coding reference: < 30% = Low conflict | 30-39% = Moderate | 40-54% = High | 55-64% = Severe | ≥ 65% = Critical. Source: Primary Survey, 2025.

Reading across the rows, the pattern at New Market Spot 2 (the bottom row) is immediately visible as qualitatively different from the other three locations. While the first three rows show some variation across hours - dropping to lower values at certain times - New Market Spot 2 never drops below 55.0% at any hour. The conflict here is never moderate; it is always at 'Severe' or 'Critical' level throughout the day.

4.6.2 Temporal Patterns Identified

Three distinct temporal patterns emerge from the matrix:

Pattern 1: Double-Peak (Gariahat Spot 1)

Road overflow peaks in the morning (44.6% at 11-12h) and again in the evening (38.5% at 17-18h), with a clear trough in the mid-afternoon (23.7% at 16-17h and 28.1% at 14-15h). This pattern reflects the morning shopping rush and the post-work evening surge. The mid-afternoon data represents the planning opportunity - this is

the window when time-based management can be most effective, as vendors and pedestrians can genuinely coexist during this period.

Pattern 2: Sustained Flat (Gariahat Spot 2 and New Market Spot 1)

At both these locations, road overflow remains at a moderate-to-high level across all seven hours, with minimal variation. At Gariahat Spot 2, for example, the range is 20.0% to 36.9% - relatively flat after the low morning hour. This sustained pattern is caused by fixed vendors, who create a permanent baseline encroachment regardless of how many pedestrians are present. Time management alone cannot address this pattern; the fixed vendor spatial allocation must be resolved first.

Pattern 3: Structurally Elevated (New Market Spot 2)

Road overflow at New Market Spot 2 is consistently above 55% at every single hour, with the lowest recorded value (55.0% at 15-16h) being higher than the highest recorded value at Gariahat Spot 1 (44.6% at 11-12h). This pattern cannot be resolved through temporal management strategies. It requires fundamental morphological intervention - either widening the lane, relocating fixed vendors, or both.

Key Temporal Finding

The 17:00-18:00 hour slot is the universal peak conflict hour across all four locations simultaneously. All conflict indicators - road overflow %, absolute road count, and standing count - peak at this hour across the study. This is the most critical window for any intervention. SVA 2014 Town Vending Committee guidelines (§7) provide the legal basis for time-specific vendor corridor management, but this has not been activated at either study site.

4.6.3 Off-Peak Coexistence Evidence

One of the most significant discoveries from the temporal analysis is the consistently lower conflict intensity observed in the 11:00-12:00 hour slot. This is the time of day when market activity has begun but pedestrian volumes are not yet at their peak. At Gariahat Spot 2, road overflow at this hour is only 20% - more than 13 percentage points below its own full-day average of 33.2%. At Gariahat Spot 1, the 11-12h overflow (44.6%) is high, but the mid-afternoon hours (14-15h: 28.1%) show near-acceptable conditions.

This matters enormously for planning. It proves empirically that the same street space - with the same number of vendors present - can function adequately for both vendors and pedestrians during lower-density periods. The conflict is not inevitable or inherent

to the street. It is a product of the combination of fixed vendor encroachment and peak pedestrian volume arriving simultaneously. Separate these two pressures in time, and the space can work.

Off-Peak Coexistence Finding

Between 11:00-12:00 hrs, three of the four survey spots record road overflow below 45%, and Gariahat Spot 2 records as low as 20%. This is direct empirical proof that the same street, with the same vendor population, can function acceptably for both vendors and pedestrians when pedestrian volumes are lower. Time-based management is a proven intervention, not merely a theoretical one.

4.7 Stakeholder Perspective Analysis

Most urban planning responses to vendor-pedestrian conflict in Indian cities make a fundamental error: they frame the problem as vendors vs. pedestrians, and then take sides. Either vendors are treated as illegal encroachers to be removed, or pedestrians are treated as the legitimate users who must be protected from vendors. Both framings lead to failed interventions - because both groups have legitimate and legally recognised claims over public street space.

This chapter uses a neutral technocratic framework: identify the positive and negative claims of each group, find where the claims are compatible (the 'overlap zone'), and find where they are genuinely incompatible without structural intervention (the 'irreconcilable conflict zones'). Planning responses that emerge from this framework are equitable, evidence-based, and more likely to be implementable.

4.7.1 Vendor Perspective - Positives and Negatives

Table 4.11: Street Vendor Spatial Claims

Positive Claims (Legitimate Vendor Rights)	Negative Claims (Vendor-Caused Harms)
Legally recognised livelihood right under SVA 2014 §1 and Article 19(1)(g) of the Indian Constitution.	Occupation of pedestrian ROW beyond any reasonable vendor edge zone - often 1.2 to 2.5 m deep.
Provision of essential daily goods (vegetables, fruit, cooked food) within walking distance of transit points and residential areas.	Active resistance to relocation when the prime-location business logic - proximity to customers - is not preserved in the relocation site.

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Positive Claims (Legitimate Vendor Rights)	Negative Claims (Vendor-Caused Harms)
Significant economic contribution to Kolkata's urban informal economy. Street vending supports thousands of livelihoods.	Territorial re-occupation of prime street space within 48-72 hours after KMC clearance drives (directly observed during the survey period).
Spatial location logic is rational: vendors are where their customers are. This is not random encroachment - it is economically intelligent behaviour.	Clustering at the highest-conflict nodes (entry intersections) intensifies pedestrian bottlenecks at precisely the worst locations.
Habitual territorial occupation creates an informal social order that regulates inter-vendor competition and spatial allocation.	-

Source: Primary Survey 2025; Field Observation; Street Vendors Act 2014

4.7.2 Pedestrian Perspective - Positives and Negatives

Table 4.12: Pedestrian Spatial Claims

Positive Claims (Legitimate Pedestrian Rights)	Negative Claims (Pedestrian-Caused or - Experienced Harms)
Constitutional right to safe and unobstructed movement on public footpath infrastructure.	Effective walking width < 0.8 m at all four markets during peak hours - far below the minimum walkable standard of 1.8 m.
Access to essential goods available in market streets without significant detour - pedestrians also benefit from vendor proximity.	Forced spillover onto the carriageway, creating a secondary vehicle-pedestrian conflict with serious safety implications.
Street vitality and affordability: market streets are vibrant public spaces that serve low-income populations who cannot afford formal retail.	No predictable, unobstructed through-path on market streets - irregular vendor locations mean even regular users cannot plan their route.
Familiar socio-spatial environment for daily routines and purchases.	Standing shoppers transacting with vendors compound the obstruction of through-pedestrian corridors, especially at 16-18h.

Source: Primary Survey 2025; Field Observation

4.7.3 Where Both Can Go Together - Overlap/Compatible Zones

The overlap analysis identifies specific conditions under which vendor and pedestrian spatial claims are mutually compatible - where interventions can benefit both groups simultaneously. These are not compromises; they are genuine planning opportunities.

Table 4.13: Overlap Analysis - Conditions for Mutual Spatial Compatibility

Overlap Condition	Benefit to Vendors	Benefit to Pedestrians
Time-based street management (off-peak vending corridors - vendor-free from 16:00 to 19:00h)	Vendors retain their prime locations and high-footfall access. Setup/breakdown schedules are agreed in advance, giving vendors certainty.	Unobstructed corridor during the designated peak pedestrian movement hours. Predictable and safe path.
Edge-zone demarcation under SVA 2014 §22 (vendor zone at footpath boundary, 0.8-1.0 m deep)	Formalised spatial rights - reduced risk of arbitrary eviction. Secure, documented territory.	Clearly defined pedestrian corridor of minimum 1.8 m. Substantial reduction in road overflow.
Typology-based allocation (fixed/semi-mobile/mobile zones)	Business continuity for fixed vendors with defined edge zones. Scheduled access for semi-mobile vendors at mid-block locations.	Predictable spatial arrangement - pedestrians learn the layout and can plan their movement through the market.
Node dispersal (shifting vendor clusters from intersections to mid-block locations)	Fewer conflict incidents with pedestrians; potentially more stable business environment away from congestion nodes.	Intersection nodes cleared of vendors - pedestrian flow is no longer blocked at the most critical convergence points.

Source: Primary Survey Analysis 2025; Field Observation; SVA 2014 §22

4.7.4 Where They Cannot Go Together - Irreconcilable Conflicts

Not all conflict zones are amenable to coexistence solutions. In some cases, the physical constraints of the street space make it impossible for both vendors and pedestrians to use the same space safely, regardless of scheduling or management. These are the cases where structural intervention - not management - is the only viable response.

Table 4.14: Irreconcilable Conflict Zones - Survey Evidence

Location / Condition	Evidence of Irreconcilability	Why Coexistence Fails	What Is Required
New Market Spot 2 (Perimeter Lane)	64.9% average road overflow across all seven hours. Footpath count (425) is less than half the road count (785). No hour records below 55%.	The total ROW of 8-10 m cannot accommodate even a minimum vendor edge zone (0.8 m) plus a minimum pedestrian corridor (1.8 m) on each side simultaneously.	ROW widening via carriageway reconfiguration AND conditional relocation of fixed vendors. Scheduling alone cannot fix this.

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Location / Condition	Evidence of Irreconcilability	Why Coexistence Fails	What Is Required
Fixed vendors at intersection nodes (all four sites)	Peak standing counts of 101-143 persons co-occur with peak road overflow at these exact nodes. The double-peak compound effect is maximum here.	Intersection geometry forces all pedestrian flow to converge at the point where fixed vendors occupy most space. There is no residual pedestrian corridor at peak hours.	Node redesign: dispersal of fixed vendors to mid-block locations. Cannot be resolved through time management - the vendor is physically occupying the space during the pedestrian peak.

Source: Primary Survey 2025; Field Observation; SVA 2014 §22

4.8 Spatial Conflict Zone Identification

Based on the primary survey data, field observation, and morphological analysis, four distinct conflict nodes have been identified, characterised, and rated for severity. These four nodes - N-01 through N-04 - form the spatial basis for the planning proposals in Chapter 5.

Table 4.15: Conflict Node Analysis - Spatial Characteristics and Severity

Node	Location	Morphology	Severity	Primary Survey Evidence	SVA 2014 Status
N-01	Gariahat Spot 1 - Linear mid-block	Two-sided vendor strips / 10-12 m one way	HIGH	FP: 1,195 · Road: 584 · Overflow: 32.8% · Peak: 38.5% @ 17-18h	No vending zones demarcated (SVA §22)
N-02	Gariahat Spot 2 - Linear edge junction	Two-sided / wider ROW / nodal concentration	HIGH	FP: 1,611 · Road: 800 · Overflow: 33.2% · Standing peak: 91 @ 16-17h	No TVC spatial input recorded
N-03	New Market Spot 1 - Colonial entry node	Radial intersection / 12-14 m one way variable width	CRITICAL	FP: 3,182 · Road: 1,892 · Overflow: 37.3% · Peak count: 1,030 @ 17-18h	TVC inactive; vending zones absent
N-04	New Market Spot 2 - Perimeter lane	Narrow lane (5-6 m one way) / radial spillover / no clear ROW	CRITICAL	FP: 425 · Road: 785 · Overflow: 64.9% avg · 75.7% peak @ 17-18h	Severest conflict zone - no formal regulation

Source: Primary Survey 2025; Field Observation; Street Vendors Act 2014 §22.

The progression from N-01 to N-04 represents an increasing severity of conflict, driven by a combination of narrowing street width, increasing vendor density, and more complex pedestrian desire line geometry. N-01 and N-02 at Gariahat are manageable through a combination of edge-zone demarcation and time-based management. N-03 at New Market requires more intensive intervention at the entry node. N-04 at New Market Spot 2 requires structural intervention - morphological reconfiguration and conditional vendor relocation - because coexistence is physically impossible within the current ROW.

4.9 Qualitative Field Observations

The quantitative data above tells us how many people are where, and at what times. But it does not fully explain how people behave in conflict situations, how vendors manage their territories, or why certain interventions that seem obvious on paper consistently fail in practice. Structured field observations conducted simultaneously with the movement counts provide this qualitative dimension. Four key themes emerged.

4.9.1 How Pedestrians Adapt to the Space

- Route diversion to avoid vendor stalls: Pedestrians consistently choose to step onto the carriageway or to navigate around the edges of stalls rather than pushing through the vendor zone. This is not passive behaviour - it represents a strategic spatial calculation made in real time by pedestrians who have assessed that the vendor-controlled zone is impassable. Importantly, vendors never divert for pedestrians. This asymmetry reveals the existing spatial power structure: vendors effectively control the footpath, and pedestrians must adapt.
- Complete functional reversal at New Market Spot 2: At this location, the footpath was observed throughout the survey period to be occupied almost entirely by stationary shoppers transacting with vendors. Meanwhile, all moving pedestrian traffic flowed on the carriageway. The intended functions of the two surfaces had been completely reversed - the road was functioning as the footpath and the footpath was functioning as the shopping frontage.

- Path-finding intelligence among regular users: Regular market-goers who know the vendor layout have learned specific detour routes and micro-paths through the market that allow them to move relatively efficiently. First-time and occasional users, however, enter the market without this knowledge and exhibit significant hesitation at entry points (especially N-03 and N-04), contributing to congestion at these already-overloaded nodes.

4.9.2 Vendor Territorial Behaviour

- High territorial memory retention among fixed vendors: Fixed vendors retain their exact physical locations day after day, regardless of KMC clearance drive activity. The territory of each vendor is socially recognised by neighbouring vendors - stepping into another vendor's territory is understood to carry social costs. This system of informal territorial recognition is entirely undocumented but is more enforceable at the micro-level than any formal zoning plan. Vendors who temporarily lose their spot during a clearance drive race to re-occupy it before another vendor can claim it.
- Dynamic spatial intelligence among semi-mobile vendors: Food cart vendors and foldable-stall operators were observed to move within a 10-20 metre range over the course of a single survey day. They approach intersection nodes and high-density areas during peak pedestrian hours (when customer volume is highest) and withdraw to mid-block or edge positions during quieter periods. This dynamic spatial intelligence is essentially a self-managed time-sharing system that could be formalised into an official temporal management protocol under SVA 2014.
- Post-clearance re-occupation in 48-72 hours: At one survey point where a KMC clearance drive was observed during the study period, all vendors had returned to their pre-clearance locations within 48 to 72 hours. This pattern has been documented in other Indian cities (Manila Assemblage Study - Rukmana 2022; Stadium Road Bhopal Case), and the field observation confirms its occurrence at Kolkata's New Market as well. Enforcement without spatial design intervention generates only a temporary and costly displacement effect.

4.9.3 The Agitation Dynamic

The quantitative data captures conflict intensity through proxy metrics like road overflow percentage. But conflict also has a social dimension - the actual human friction between vendors and pedestrians - that is only visible through field observation.

At all four survey spots, pedestrians were observed expressing frustration with vendor encroachment: verbal exchanges, physical pushing through displays, and gestures of being irritated. Vendors respond with what can be described as 'defensive spatial tightening' - pulling their displays and goods closer together, taking up as much contiguous space as possible, and using social pressure (looks, words, and body language) to signal ownership of the footpath zone they occupy.

This agitation dynamic is not random. It peaks precisely at the same hours that the quantitative data identifies as maximum conflict hours - specifically the 17:00 to 18:00 time slot at all four spots. This alignment between qualitative agitation observation and quantitative road overflow data provides a useful validation: the two methods are capturing the same underlying conflict phenomenon from different angles.

4.9.4 Why You Cannot Simply Move Vendors Elsewhere

Perhaps the most practically important qualitative finding of the study is what field observation and conversations reveal about location logic - the rational economic basis for where vendors choose to operate.

All field conversations and observations confirmed that vendors choose their locations based on three factors:

- The volume of pedestrian footfall passing by;
 - Proximity to transit alighting points, particularly bus stops and auto-rickshaw stands;
 - Proximity to established commercial activity that generates customer demand.
- These factors are not arbitrary. They are the foundation of the vendor's livelihood. A vendor who is relocated to a location that lacks these three features will experience a reduction in income and will return to their original location - or another vendor will occupy it.

This pattern has been documented in Kolkata itself. When vendors at New Market were relocated to an internal zone inside the market building, they reported severe income losses and returned to street locations within weeks. The same pattern appears in studies from Bangkok, Manila, and Chandni Chowk in Delhi. The conclusion for planners is clear: planning interventions must work with vendor location logic, not against it. This means formalising vendor presence at prime locations through spatial design - edge zones, time management, typology allocation - rather than removing vendors from prime locations through enforcement. Relocation should be considered only when coexistence is morphologically impossible and the relocation destination preserves the economic viability of the vendor's business.

4.10 Regulatory Framework Gap Analysis - SVA 2014

Chapter 3 (Section 3.8 and Table 3.11) provides a detailed account of the SVA 2014 implementation status at both study sites, covering the five key statutory provisions - vendor surveys (§10), vending zone demarcation (§§21-22), certificates of vending (§23), minimum pedestrian corridor maintenance, and the eviction prohibition (§36). That analysis establishes the baseline regulatory gap: none of the operative provisions of SVA 2014 have been implemented at Gariahat or New Market.

This section does not repeat that documentation. Instead, it draws on the primary survey data in this chapter to show what the regulatory failure looks like in quantitative terms - translating the institutional gap identified in Chapter 3 into concrete, measurable consequences for pedestrians and vendors.

Table 4.16: SVA 2014 Regulatory Failure - Quantified Consequences from Primary Survey Data

SVA 2014 Provision Not Implemented	Quantified Consequence
§22 - Vending zones not demarcated at any of the four survey spots.	All four spots record road overflow above 32%. At New Market Spot 2, road overflow averages 64.9% across all hours - the footpath functions as shopping frontage, not as a pedestrian corridor, at every hour of the survey day.
§7 - Town Vending Committees inactive; no spatial planning role at either site.	KMC clearance drives occur without spatial design intervention. Vendors return to identical locations within 48-72 hours (observed directly during the survey period). The eviction-return cycle wastes municipal resources and produces zero lasting spatial change.

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SVA 2014 Provision Not Implemented	Quantified Consequence
§2(1)(a) - No typology-based allocation despite vendor classification being legally mandated.	Fixed vendors (55%) and semi-mobile vendors (30%) coexist in the same unregulated space, producing the double-peak compounding effect at 17-18h observed across all four spots - the most severe single hour in the study.
§23 - No vendor registration with location-specific certificates.	Vendor territorial claims are entirely undocumented. Planners cannot design vending zones around a vendor population for which there is no formal spatial record.
§36 - Eviction without alternative space allocation (direct policy violation).	Post-clearance re-occupation documented at one survey spot within 48-72 hours - consistent with the pattern noted in Chapter 3 (Section 3.8) and with findings from comparable cities (Manila, Bangkok, New Market internal relocation).

Source: Primary Survey 2025; Street Vendors Act 2014

Together, the regulatory analysis in Chapter 3 and the primary survey data in this chapter tell the same story from two directions. Chapter 3 shows that SVA 2014 has not been implemented. This chapter shows what that non-implementation costs in measurable terms: 4,061 out of 10,474 pedestrians walking on the vehicle carriageway in a single seven-hour survey period; a perimeter lane where the footpath is functionally non-operational at every hour of the day; and a clearance-and-return cycle producing no lasting spatial change.

Institutional Assessment

The primary planning failure at Gariahat and New Market is not a shortage of legal authority - the SVA 2014 provides ample statutory basis for vending zone demarcation, vendor classification, and TVC-led spatial governance (fully documented in Chapter 3, Section 3.8). The failure is purely institutional: KMC has not translated statutory mandates into spatial plans, vending zone delineations, or operational TVC structures at either site. Addressing this institutional gap is the primary task for the planning proposals in Chapter 5.

4.11 Synthesis of Findings

This chapter has presented a comprehensive evidence base drawn from primary survey data, field observation, morphological analysis, and regulatory assessment at four conflict nodes across two major Kolkata street markets. The synthesis below integrates all of this into a coherent analytical conclusion, linked to each research

objective and culminating in the core argument that drives the planning proposals in Chapter 5.

4.11.1 Findings Linked to Each Research Objective

Table 4.17: Summary of Key Findings by Research Objective

Objective	Objective Statement	Key Finding from This Chapter
O1	Identify spatial conflict zones between pedestrian movement and street vending.	All four survey spots are confirmed conflict zones. New Market Spot 2 (N-04) is the severest, with a 64.9% average road overflow and no off-peak relief. Conflict at Gariahat (N-01, N-02) is severe but temporally variable and therefore manageable through combined spatial and temporal strategies. Conflict at New Market (N-03, N-04) is both temporally persistent and morphologically embedded, requiring structural intervention.
O2	Examine how vendor typology influences pedestrian flow and obstruction.	Fixed vendors (55%) create an irreversible baseline encroachment that cannot be managed through time-based strategies alone. Semi-mobile vendors (30%) create the worst temporal peaks (17-18h) through additive occupation at already-congested nodes. Mobile vendors (15%) create diffuse corridor obstruction but are the most adaptable to temporal management. No typology-sensitive allocation exists at either site, as mandated by SVA 2014 §2(1)(a).
O3	Assess how street morphology intensifies or distributes spatial conflict.	Street morphology is an independent conflict driver at New Market Spot 2: the narrow perimeter lane (6-8 m ROW) generates structural road overflow exceeding 55% even at off-peak hours, independent of vendor density at those hours. At Gariahat, the wider ROW distributes but does not eliminate conflict. Morphological characteristics - width, node type, and desire line clarity - determine the ceiling of conflict severity at each node.
O4	Evaluate temporal variations in conflict intensity.	17:00-18:00h is the universal peak conflict hour across all four locations simultaneously. All conflict indicators - road overflow %, absolute road count, and standing count - peak at this slot. 11:00-12:00h shows consistently lower conflict, with Gariahat Spot 2 recording only 20% road overflow - empirical proof that coexistence is spatially possible under lower pedestrian density conditions.

Source: Primary Survey 2025; Field Observation; SVA 2014; Literature Review

4.11.2 Core Analytical Conclusion

The spatial conflict between street vendors and pedestrians at Gariahat Market and New Market, Kolkata, is not caused by the existence of street vendors. The vendors are present because there are customers, and the customers are present because there

are vendors. This is a self-reinforcing spatial logic that no enforcement drive has ever successfully disrupted.

The conflict is caused by a planning failure: city authorities have not successfully translated the legal rights and spatial claims of both stakeholder groups into designed, allocated, and managed street space. The legal foundation to do this already exists in the SVA 2014. The institutional will to implement it has not yet materialised.

More precisely, the spatial conflict at these two market locations is characterised by five distinct dimensions, all of which must be addressed together. First, it is physical - vendor encroachment has reduced pedestrian walking widths to below 1 metre at all four survey nodes during peak hours. Second, it is typological - different vendor types create different spatial and temporal management needs that cannot be addressed through a single blanket intervention. Third, it is morphological - the geometry of each street sets a ceiling on the severity of conflict that cannot be lifted through management alone. Fourth, it is temporal - the timing of conflict peaks is predictable and can be planned around. Fifth, it is institutional - the regulatory tools to address the conflict exist in law but have not been activated on the ground.

Any planning response that addresses only one or two of these five dimensions will not be sufficient. Chapter 5 develops planning proposals that address all five dimensions: spatial design (vendor zones, node reconfiguration), typological management (zone allocation by vendor type), morphological intervention (ROW reconfiguration at N-04), temporal management (time-based corridor enforcement), and institutional activation (operationalising TVCs and SVA 2014 §22 provisions).

CHAPTER 5: PROPOSALS AND RECOMMENDATIONS

5.1. Introduction

This chapter is the final and most important part of this thesis. Everything that has been studied, measured, and analysed in the previous chapters comes together here, in the form of a concrete planning proposal. The chapters before this one established the problem clearly: market streets in Kolkata are not working for pedestrians. At Gariahat Market and New Market, the footpath has been so heavily occupied by street vendors that pedestrians are forced to walk on the road. Nearly four out of every ten people surveyed were found walking on the carriageway, not on the footpath. At the worst location, New Market Spot 2 on Bertram Street, more than six out of every ten pedestrians were using the road instead of the pavement, throughout the entire survey day.

But this chapter does not approach that finding as a reason to remove vendors. Vendors are on the street because their customers are on the street. They have a legal right to be there, protected by the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014. The problem is not that vendors exist. The problem is that no one has ever drawn a line telling vendors and pedestrians where each of them is supposed to go.

The proposal in this chapter is called Vending Zone Demarcation with Typology-Based Spatial Allocation. It is about drawing that line. It is about dividing the footpath fairly between the two groups who need to use it, giving each group a clearly defined space, and backing that division with the legal framework that already exists. No new law is needed. No vendor needs to be permanently removed. What is needed is a simple, well-designed plan and the institutional will to implement it.

5.2. Summary of the Problem

Before describing the proposal, it is useful to briefly summarise what the survey data found, as this is the direct basis for every design decision in this chapter.

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Table 5.1: Summary of Key Survey Findings Across All Four Conflict Nodes

Node	Location	Footpath Width Available	Effective Walking Width	Road Overflow %
N-01	Gariahat - Mid-block	2.5 m	0.8 - 1.0 m	32.8%
N-02	Gariahat - Crossing Junction	2.5 m	0.8 – 1.0 m	33.2%
N-03	New Market - Main Entry Node	3.0 - 3.5 m	1.0 m	37.3%
N-04	New Market - Bertram Street	1.8 - 2.0 m (one side)	Less than 0.4 m	64.9%

Source: Primary Field Survey, 2025 | Standard minimum pedestrian corridor as per NUTP 2006: 1.8 m

The cross-section at all four nodes follows the same basic pattern. On one side is the building edge or permanent shop front. Moving outward from the building, there is the pedestrian footpath. After the footpath comes the vendor zone, which has spread across the footpath. And beyond the vendors is the carriageway. The result is that vendors end up sitting between the footpath and the road, effectively pushing pedestrians either back against the shop fronts or out onto the road.

The only exception to this pattern is New Market Spot 2 on Bertram Street, where vendors (a row of fruit juice shops) occupy only one side of the street. The opposite side of the street is completely clear of vendors. This makes N-04 a different kind of problem, and its proposal is treated separately in this chapter.

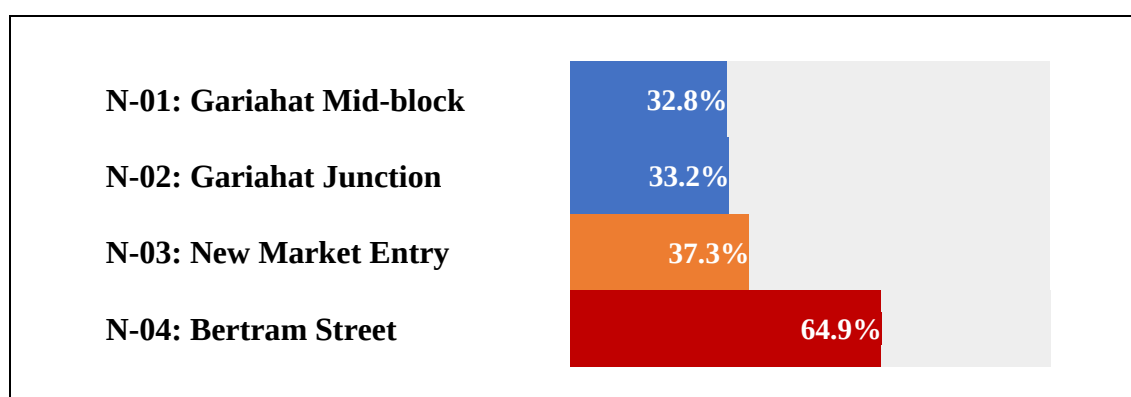


Figure 5.1: Road Overflow Percentage at Each Conflict Node (All-Day Average)

Source: Primary Survey, 2025 | Red = Critical (>55%) | Orange = High (30-55%) | Blue = Moderate

5.3. Legal Basis for the Proposal

One of the most important things to understand about this proposal is that it does not need any new law. The Street Vendors Act, 2014 already provides every legal tool required to implement what is being suggested here. What has been missing is the implementation. The table below shows exactly which section of the law supports which part of this proposal.

Table 5.2: SVA 2014 Provisions and Their Role in This Proposal

Section of SVA 2014	What It Says	How This Proposal Uses It
Section 2(1)(a)	Classifies vendors as Stationary, Mobile, and Itinerant.	Used to allocate different parts of the vendor zone to different vendor types.
Sections 21 and 22	Requires physical demarcation of vending zones on all market streets, with a minimum pedestrian corridor maintained.	This is the core of the proposal. The zone demarcation at all four nodes is directly mandated by these sections.
Section 7	Mandates a Town Vending Committee (TVC) for participatory governance of vending in every city.	KMC's TVC is the implementing agency. All spatial decisions go through the TVC.
Section 10	Requires a vendor survey every five years.	A site-level vendor survey at Gariahat and New Market is the first step of implementation.
Section 23	Every vendor gets a Certificate of Vending with their name, goods, and specific allocated location.	After zone demarcation, each vendor is issued a certificate that makes their spot legally theirs.
Section 36	No eviction without prior provision of an alternative vending space.	The demarcated vendor zone is the alternative space. Once it exists, eviction without it is unlawful.

Source: Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014

5.4. The Proposal: Vending Zone Demarcation with Typology-Based Spatial Allocation

The proposal has three components. First, the footpath is physically divided into two zones: a Vendor Zone and a Pedestrian Corridor. Second, within the Vendor Zone, different types of vendors are allocated different positions based on how they operate. Third, every vendor in the zone is registered and given a Certificate of Vending. All three components work together. None of them alone is sufficient.

5.4.1. Component 1 - Physical Zone Demarcation

The most visible change this proposal makes is drawing a clear boundary on the footpath. On one side of this boundary is the Vendor Zone. On the other side is the Pedestrian Corridor. The boundary is marked using durable road paint and low flexible bollards placed every 3 to 5 metres. These bollards do not block vendor access to their zone. They simply make the boundary visible and physically present so that neither vendors nor pedestrians can accidentally drift into the wrong space.

The width of each zone at each conflict node has been calculated directly from the field measurements taken during the primary survey. The standard minimum pedestrian corridor width of 1.8 metres, as required by the National Urban Transport Policy 2006, is the non-negotiable baseline. Whatever remains of the footpath width after the 1.8 metre corridor is set aside becomes the vendor zone.

Table 5.3: Proposed Zone Dimensions at Each Conflict Node

Node	Location	Designed Footpath Width	Pedestrian Corridor (Protected)	Vendor Zone Width	Notes
N-01	Gariahat - Mid-block	2.5 m	1.5 m	1 m	Vendor zone on carriageway side of footpath
N-02	Gariahat - Crossing Junction	2.5 m	1.5 m	1 m	Vendor-free buffer 10 m around crossing node
N-03	New Market - Main Entry	3.0 - 3.5 m	1.8 m	1.0 - 1.5 m	Heritage-sensitive materials; vendor zone against market wall
N-04	New Market - Bertram Street	1.8 - 2.0 m (one side only)	1.8 m	0.0 m (Special)	See Section 5.6 for two-stage approach

Source: Primary Field Survey, 2025; NUTP 2006

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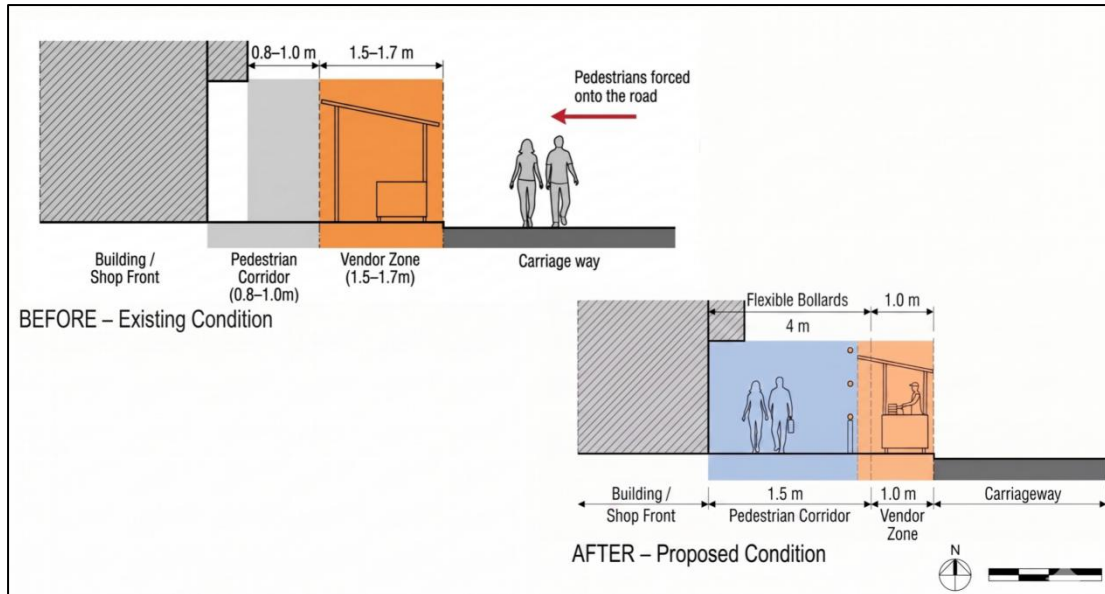


Figure 5.2: Cross-Section - Before and After Zone Demarcation at Gariahat (N-01 / N-02)

Source: Drafted in AutoCAD; post-processed for visualization in Adobe Illustrator.

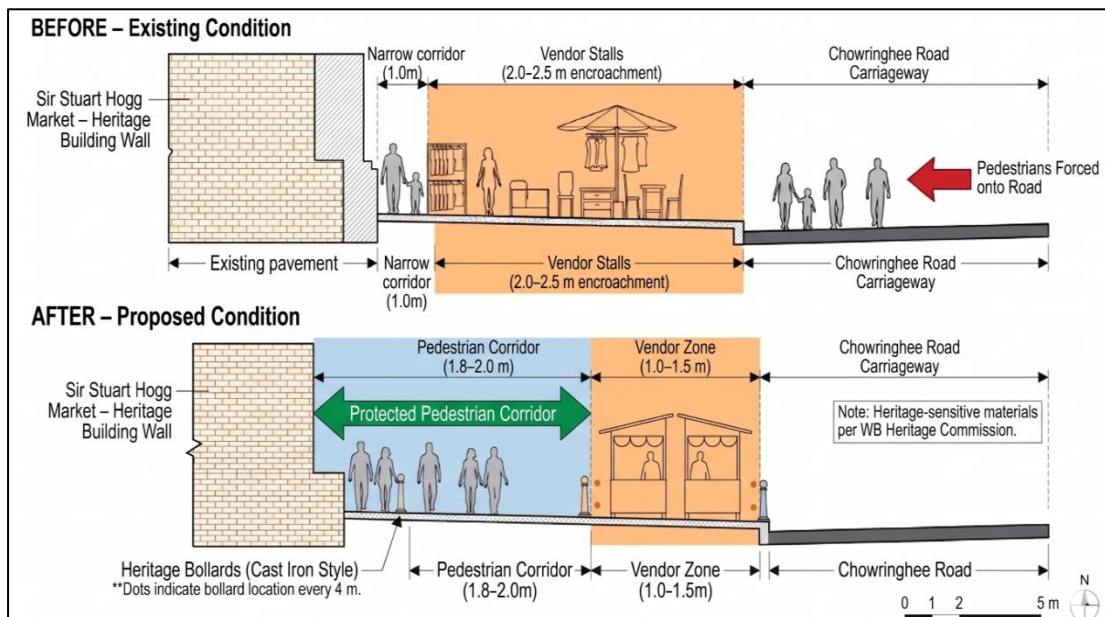


Figure 5.3: Cross-Section - Before and After Zone Demarcation at New Market Spot 1 (N-03)

Source: Drafted in AutoCAD; post-processed for visualization in Adobe Illustrator.

5.4.2. Component 2 - Typology-Based Allocation Within the Vendor Zone

Just dividing the footpath into two zones is not enough. If all vendor types are allowed into the vendor zone without any further rules, the same chaos will simply happen on a smaller scale. The SVA 2014 already classifies vendors into three types. This proposal uses that classification to give each vendor type a specific place and time within the vendor zone.

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Table 5.4: Typology-Based Allocation Rules Within the Vendor Zone

Vendor Type	SVA 2014 Class	Position in Zone	Permitted Hours	Key Rules
Fixed / Stationary Vendors (55% of total)	Stationary - §2(1)(a)(i)	Outer edge of vendor zone, along the carriageway side. Mid-block positions only. NOT at intersection nodes.	All day 07:00 - 22:00 hrs	Structure must fit within zone width. No overhanging into pedestrian corridor. Certificate of Vending required.
Semi-Mobile Vendors (30% of total)	Mobile - §2(1)(a)(ii)	Mid-block positions within vendor zone. Must not cluster at intersection nodes or crossing points.	12:00 - 20:00 hrs (daily setup and takedown)	Must be fully set up within zone boundary. Must clear setup by 20:00 hrs. Designated slot issued by TVC.
Mobile Hawkers (15% of total)	Itinerant - §2(1)(a)(iii)	Moving through vendor zone. Cannot stop and set up within 10 m of any intersection node.	07:00 - 12:00 and 20:00 - 22:00 hrs	No fixed setup. Must keep moving. Cannot block the pedestrian corridor at any time.

Source: Research Design, 2025; SVA 2014 Section 2(1)(a); Primary Field Survey, 2025

The most important rule in this table is the node restriction. The primary survey data showed clearly that the worst conflict at every node happens at intersection points and entry nodes, where vendors cluster because that is where the most customers pass. By keeping a vendor-free buffer of 10 metres around every intersection, the proposal specifically targets the compound conflict peaks observed between 17:00 and 18:00 hours. Vendors near the Gariahat Crossing, for example, will need to shift a few metres away from the crossing itself, but they can remain on the same street. Nobody is being sent to a different street or a different market.

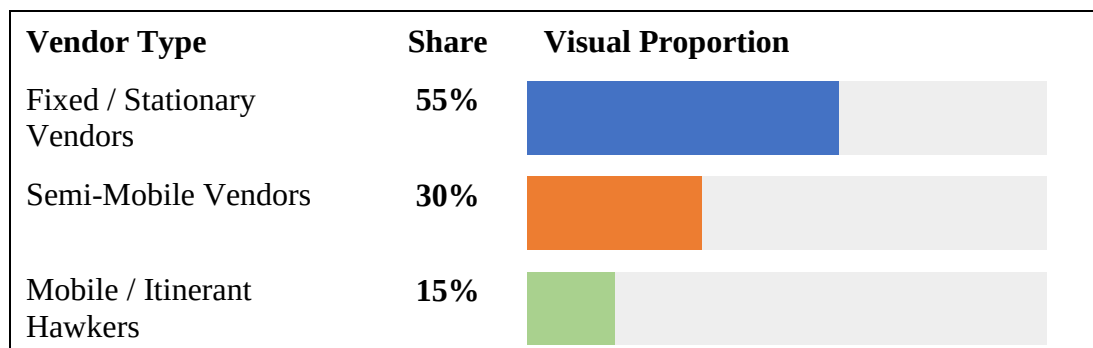


Figure 5.4: Vendor Typology Distribution at Study Sites

Source: Primary Field Observation, 2025; SVA 2014 §2(1)(a)

5.4.3. Component 3 - Vendor Registration and Certificate of Vending

Physical demarcation alone will not last. Without a formal system to document who is in the vendor zone and what their rights are, the zone boundaries will eventually be ignored and the footpath will return to its current state. The solution is vendor registration under SVA 2014 Section 23.

The process works in three steps. First, the KMC Town Vending Committee conducts a vendor survey at Gariahat Road and the New Market perimeter streets. This survey records every vendor's name, the goods they sell, and the spot they are allocated in the newly demarcated vendor zone. Second, based on the survey, each vendor is issued a Certificate of Vending. This certificate is a simple, one-page document that specifies the vendor's name, their vendor typology, the street they operate on, their allocated zone spot, and their permitted hours. Third, a copy of the zone map with vendor spot allocations is put up on a public notice board at each node, so everyone can see who is allocated where.

Table 5.5: Proposed Contents of the Certificate of Vending

Field	Description
Vendor Name	Full name of the registered vendor
Vendor ID	Unique ID issued by KMC Town Vending Committee
Street and Node	Name of market street and specific conflict node (e.g., Gariahat Road, N-01)
Vendor Typology	Fixed / Semi-Mobile / Itinerant (as per SVA 2014 Section 2(1)(a))
Allocated Spot	Specific position within the vendor zone (e.g., Mid-block, East Side, Spot No. 3)
Permitted Goods	Category of goods the vendor is registered to sell at this location
Permitted Hours	Hours during which the vendor may operate at the allocated spot
Certificate Validity	5 years, subject to renewal after next TVC vendor survey
Issuing Authority	Chairman, KMC Town Vending Committee

Source: Research Design, 2025; SVA 2014 Section 23

5.5. Site-Specific Proposals

While the general principles of zone demarcation and typology allocation apply across all four conflict nodes, each node has its own physical characteristics that require a specific spatial treatment. This section describes the intervention design for each node one by one.

5.5.1. Node N-01: Gariahat Road - Mid-Block Section

Table 5.6: Key Findings: Node N-01

KEY FINDINGS: NODE N-01 <i>Gariahat Road - Linear Mid-Block</i>	
PARAMETER	CURRENT STATUS
Current Effective Walking Width	✗ NEEDS IMPROVEMENT
Road Overflow (All-Day Average)	✗ NEEDS IMPROVEMENT
Vendor Zone Status (SVA 2014 §22)	✗ NEEDS IMPROVEMENT
Pedestrian Safety Condition	✗ NEEDS IMPROVEMENT
Potential for Coexistence (Off-Peak)	MODERATE

N-01 is located along the middle section of Gariahat Road, where semi-mobile saree and fabric vendors line both edges of the footpath. The cross-section here goes from the building or shop front, across the pedestrian footpath (2.5 m designed width), through the vendor zone which has encroached across most of the footpath, and then out to the carriageway. The effective walking width during peak hours is between 0.6 and 1.0 metres, which is well below the 1.8 metre minimum standard.

The proposal at N-01 is straightforward. A vendor zone of 1.0 metres is demarcated along the carriageway side of the footpath, between the vendors and the road. A pedestrian corridor of 1.5 metres is maintained between the vendor zone boundary and the building or shop front. Low flexible bollards are placed every 4 metres along the zone boundary. All semi-mobile vendors at this stretch are allocated specific mid-block spots within the 1.0 metre vendor zone. Their folding tables and display racks must fit within this strip. Nothing may overhang into the pedestrian corridor.

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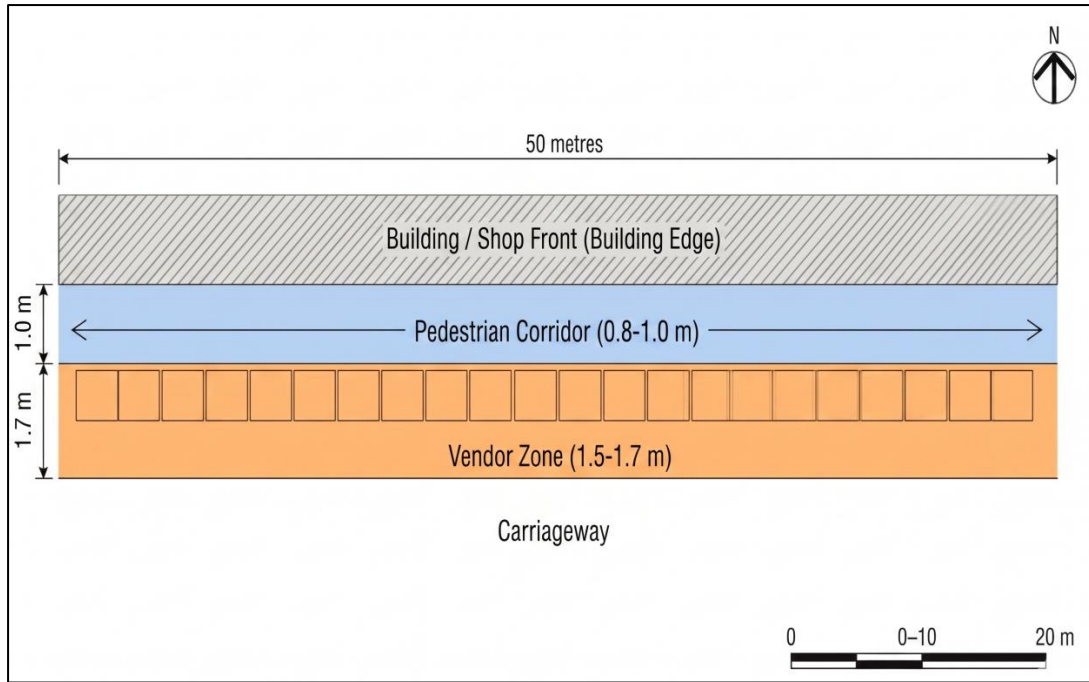


Figure 5.5: Existing Plan - Node N-01, Gariahat Road Mid-Block

Source: Site survey data; Base map drafted in AutoCAD and processed for zone demarcation in ArcGIS Pro

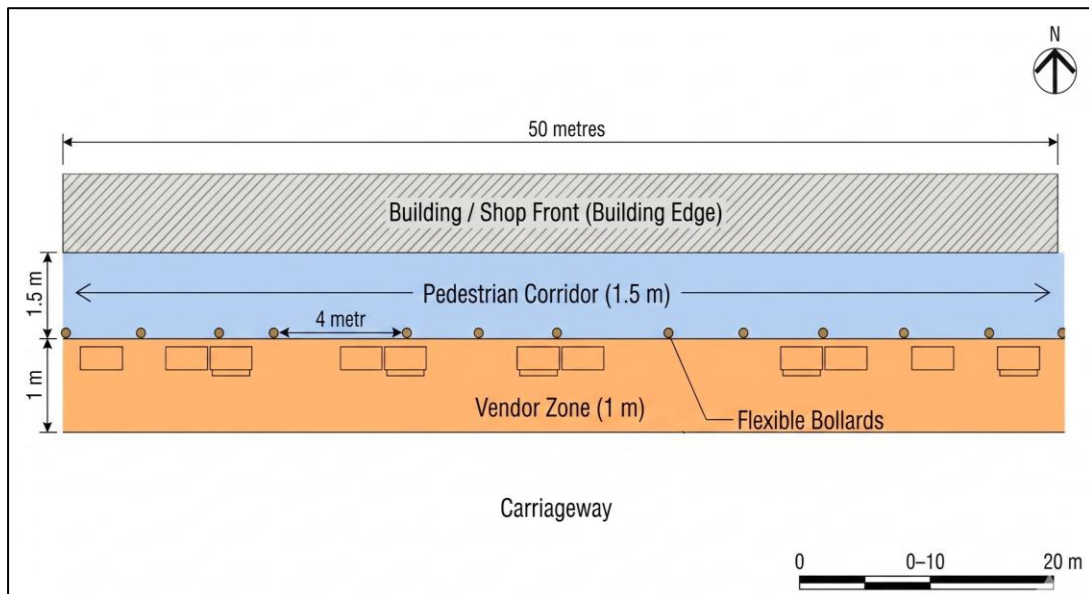


Figure 5.6: Proposed Zone Demarcation Plan - Node N-01, Gariahat Road Mid-Block

Source: Self Generated; Base map drafted in AutoCAD and processed for zone demarcation in ArcGIS Pro

5.5.2. Node N-02: Gariahat Road - Crossing Junction

Table 5.7: Key Findings: Node N-02

KEY FINDINGS: NODE N-02 <i>Gariahat Road - Near Gariahat Crossing / Flyover</i>	
PARAMETER	CURRENT STATUS
Current Effective Walking Width	✗ NEEDS IMPROVEMENT
Road Overflow (All-Day Average)	✗ NEEDS IMPROVEMENT
Node Congestion Severity (17-18 hrs)	✗ NEEDS IMPROVEMENT
Vendor Clustering at Node	✗ NEEDS IMPROVEMENT
Potential for Coexistence (Off-Peak)	MODERATE

N-02 is located at and around the Gariahat Crossing, the busiest intersection in the study area. This is a four-way signalised junction where Gariahat Road meets Rashbehari Avenue, Hindustan Road, and other approach roads. Pedestrian flows converge here from all four directions simultaneously, and vendors have clustered at this node because it is the highest-footfall point on the street. The flyover pillars at this crossing have also become informal attachment points for vendor structures.

Two additional interventions are needed at N-02, beyond the standard zone demarcation applied at N-01. First, a 10-metre vendor-free buffer zone must be maintained around the actual crossing point. No fixed or semi-mobile vendor may set up within 10 metres of the intersection on any of the four arms of the crossing. This is the single most important intervention at this node, because the compound conflict peak between 17:00 and 18:00 hours is driven primarily by vendors clustering right at the convergence point. Second, the flyover pillar bases must be cleared of vendor structures. These pillars can be used instead for public notice boards that display the vendor zone map and the list of registered vendors.

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS

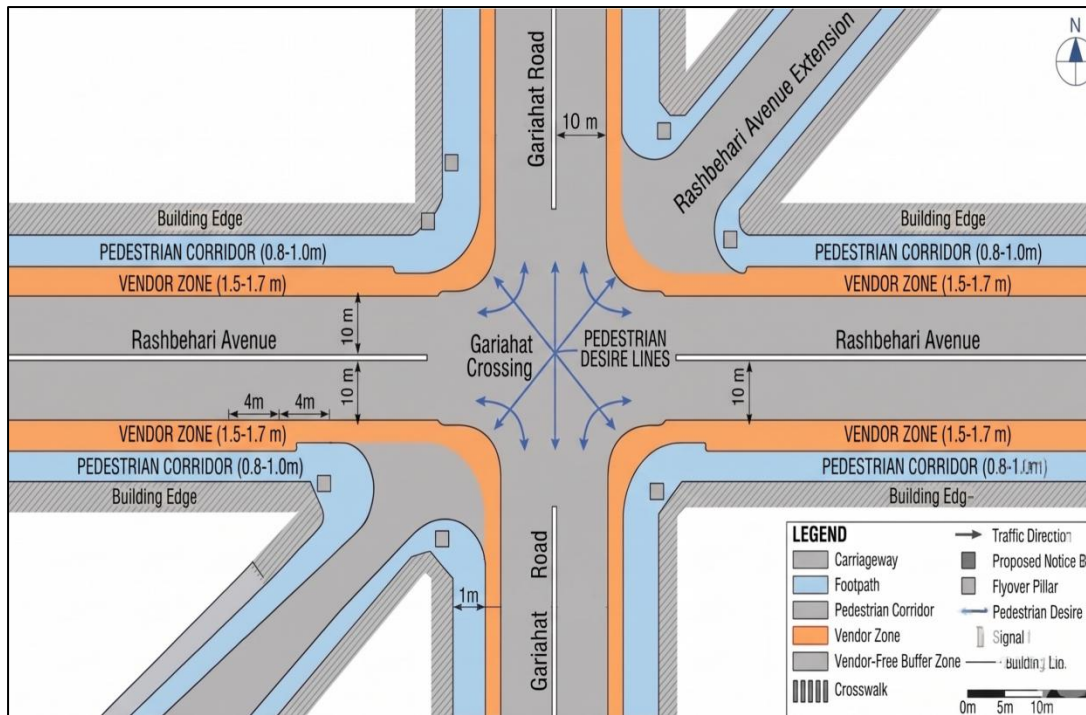


Figure 5.7: Existing Plan - Node N-02, Gariahat Crossing

Source: Site survey data; generated using AutoCAD and QGIS for spatial drafting and design intervention layout

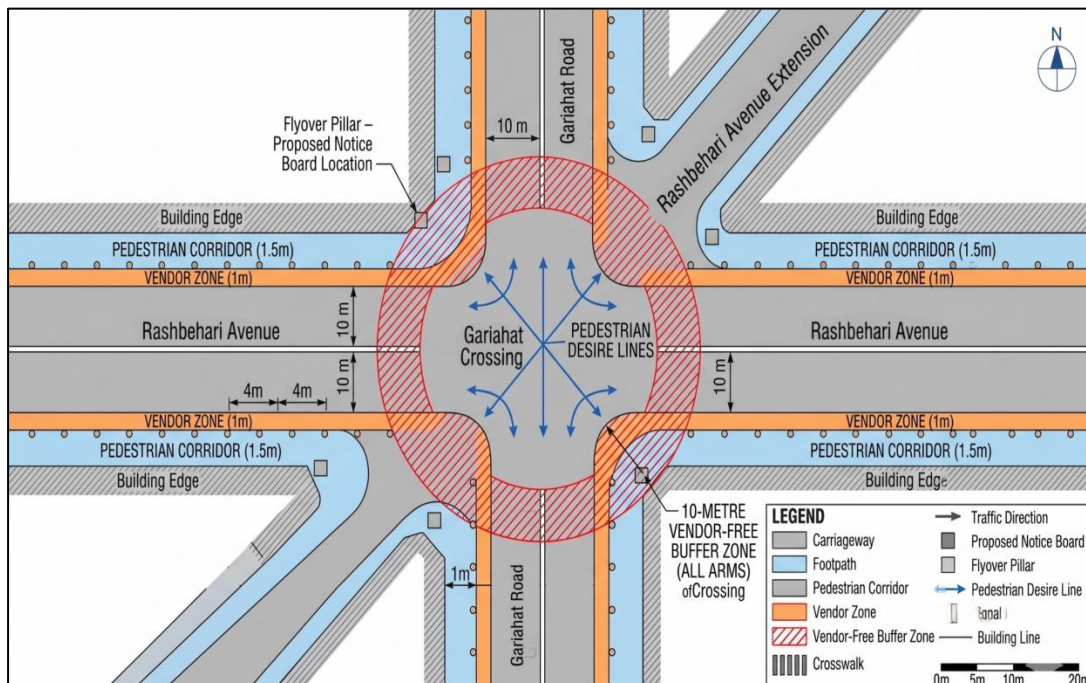


Figure 5.8: Proposed Intervention Plan - Node N-02, Gariahat Crossing

Source: Self Generated using AutoCAD and QGIS for spatial drafting and design intervention layout

5.5.3. Node N-03: New Market - Main Entry Node (Chowringhee Road Approach)

Table 5.8: Key Findings: Node N-03

KEY FINDINGS: NODE N-03 <i>New Market - Colonial Entry Node, Chowringhee Road</i>	
PARAMETER	CURRENT STATUS
Current Effective Walking Width	✗ NEEDS IMPROVEMENT
Road Overflow (All-Day Average)	✗ NEEDS IMPROVEMENT
Peak Hour Pedestrian Volume (17-18 hrs)	✗ NEEDS IMPROVEMENT
Heritage Sensitivity of Building	MODERATE
Potential for Coexistence with Wider Footpath	MODERATE

N-03 is the primary pedestrian entry point to New Market, located on Chowringhee Road on the western side of the Sir Stuart Hogg Market building. This is the busiest pedestrian node in the entire study, recording a peak count of 1,030 pedestrians in a single hour between 17:00 and 18:00. The cross-section here follows the same pattern as Gariahat: building wall (in this case, the Victorian Gothic market building facade), then the pedestrian footpath (3.0 to 3.5 m designed width), then the vendor zone (semi-mobile garment and bag stalls), and then the busy Chowringhee Road carriageway.

Because the footpath at N-03 is wider than at the Gariahat nodes (3.0 to 3.5 m), the proposal here allows a slightly more generous vendor zone of 1.0 to 1.5 metres, while still maintaining the 1.8 metre pedestrian corridor. The vendor zone is positioned against the market building wall. The pedestrian corridor runs along the Chowringhee Road side of the footpath. This arrangement keeps pedestrians away from the edge of the busy multi-lane carriageway, which is an important safety consideration at this location.

Because New Market is a heritage-listed Victorian Gothic structure, all zone markers, bollards, and notice boards at this node must be designed in a way that does not visually damage the building facade. Heritage-sensitive materials such as cast-iron bollards in a period style, and notice boards with neutral dark colour schemes, are recommended. All physical works at N-03 should be carried out in consultation with the West Bengal Heritage Commission.

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS

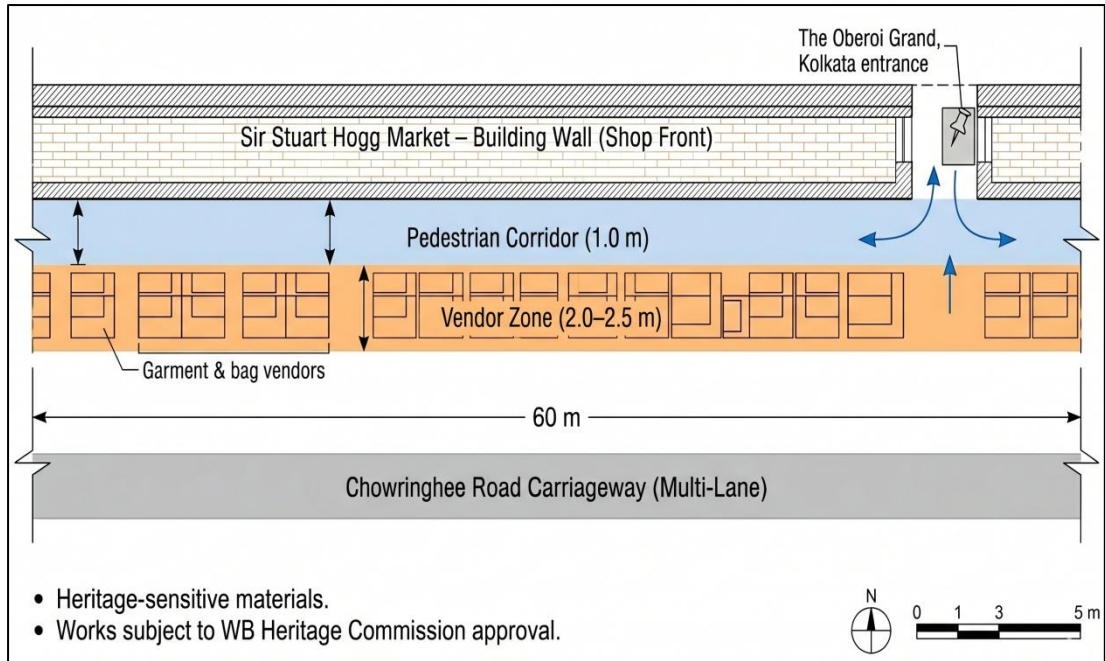


Figure 5.9: Existing Plan - Node N-03, New Market Entry (Chowringhee Road)

Source: Site survey data; Base map drafted in AutoCAD and processed for zone demarcation in ArcGIS Pro

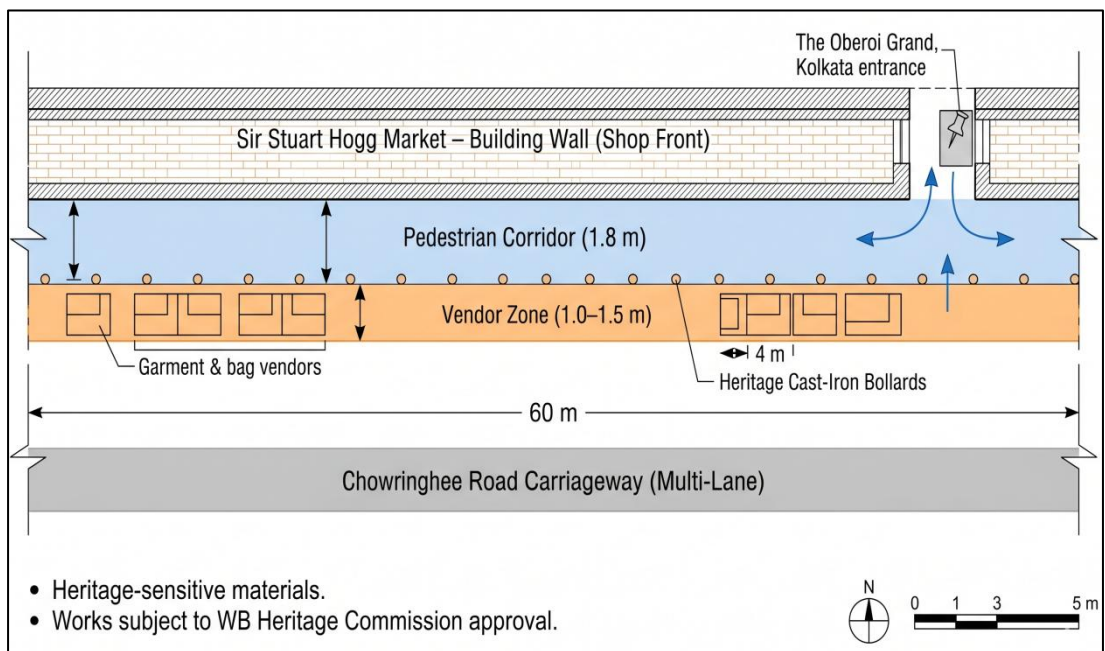


Figure 5.10: Proposed Zone Demarcation Plan - Node N-03, New Market Entry (Chowringhee Road)

Source: Self Generated; Base map drafted in AutoCAD and processed for zone demarcation in ArcGIS Pro

5.5.4. Node N-04: New Market - Bertram Street (Special Case - Two-Stage Approach)

Table 5.9: Key Findings: Node N-04

KEY FINDINGS: NODE N-04 <i>New Market - Bertram Street / Hogg Street (Narrow Perimeter Lane)</i>	
PARAMETER	CURRENT STATUS
Road Overflow - All-Day Average (64.9%)	✗ NEEDS IMPROVEMENT
Road Overflow - Peak Hour (75.7% at 17-18 hrs)	✗ NEEDS IMPROVEMENT
Total Street Width (6-8 m ROW)	✗ NEEDS IMPROVEMENT
One-Side Vendor Occupation Only	MODERATE
Opposite Side: Clear of Vendors	✓ GOOD

N-04 is different from the other three nodes in two important ways. First, it is the most severe conflict location in the entire study, with a road overflow average of 64.9 per cent and a peak of 75.7 per cent. At no hour during the entire survey day did a majority of pedestrians use the footpath. The footpath was, for all practical purposes, non-functional throughout the entire survey day.

Second, unlike the other nodes, the vendor occupation here is one-sided. A row of fruit juice shops and small food stalls occupy the footpath on one side of Bertram Street. The opposite side of the street is completely clear of vendors. This means the conflict is not caused by encroachment from both sides simultaneously. It is caused by the combination of a very narrow total street width (only 6 to 8 metres) and the juice shops taking up most of the available footpath width on the occupied side.

Standard zone demarcation cannot be directly applied at N-04 as a first step, because the total available footpath on the occupied side is only 1.8 to 2.0 metres. After deducting the minimum 1.8 metre pedestrian corridor, there is essentially no space left for a vendor zone. The proposal at N-04 therefore has two stages.

Table 5.10: Two-Stage Intervention Plan for Node N-04 (Bertram Street)

Stage	Intervention	Responsible Agency	Expected Outcome
Stage 1 (Prerequisite)	Convert Bertram Street to one-way vehicle traffic only. This reduces the carriageway width needed from approximately 6 m (two-way) to approximately 3.5 m (one-way). The freed carriageway space of	KMC Traffic Engineering; Kolkata Traffic Police	Footpath on juice shop side increases to approximately 3.5-4.0 m, creating room for both a vendor zone and a

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Stage	Intervention	Responsible Agency	Expected Outcome
	approximately 2-2.5 m is reallocated to the footpath on the occupied (juice shop) side.		pedestrian corridor.
Stage 2 (After Stage 1)	Apply standard zone demarcation on the now-wider footpath on the juice shop side: 0.7 m vendor zone for the juice shops against the building wall, and 1.8 m pedestrian corridor between the vendor zone and the carriageway. The opposite (clear) side of the street continues to be maintained as vendor-free.	KMC Engineering Department; KMC TVC	A functional 1.8 m pedestrian corridor on the occupied side. Road overflow expected to reduce from 64.9% to below 25%.

Source: Research Design, 2025; Primary Field Survey, 2025

It is important to note that the opposite side of Bertram Street (the vendor-free side) should be actively maintained as clear. A vendor-free zone on the opposite side should be formally notified under SVA 2014 Section 21 as a No-Vending Zone, so that new vendors cannot establish themselves there in the future. This is a simple administrative step but a necessary one.

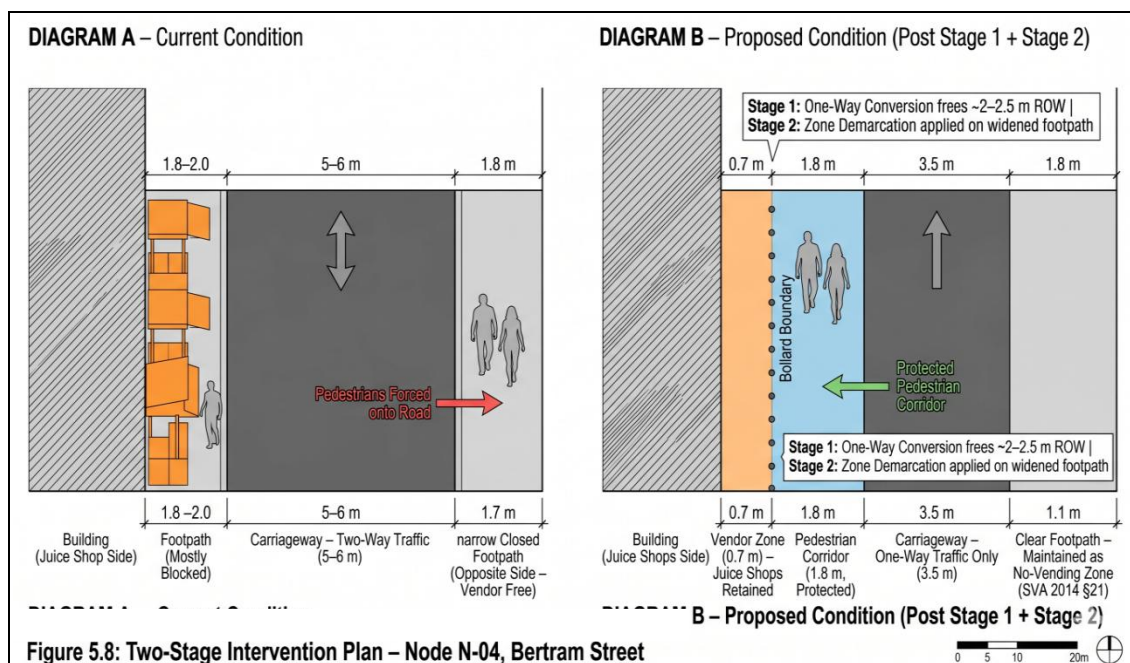


Figure 5.11: Two-Stage Intervention Plan - Node N-04, Bertram Street

Source: Drafted in AutoCAD; post-processed for visualization in Adobe Illustrator.

5.6. Implementation Pathway

A planning proposal is only useful if there is a clear, realistic plan to implement it. The pathway below is divided into four phases. All of it is grounded in institutional processes that already exist under the SVA 2014. No new institution needs to be created.

Table 5.11: Phase-Wise Implementation Plan

Phase	Key Actions	Agency Responsible	Timeline
Phase 1 Preparation	KMC TVC conducts site-level vendor survey at Gariahat Road and New Market perimeter streets. Records each vendor's name, typology, and current location. Prepares zone demarcation plan based on field measurements. Notifies Bertram Street opposite side as No-Vending Zone.	KMC Town Vending Committee; KMC Planning Department	Months 1-3
Phase 2 Demarcation (N-01, N-02, N-03)	Physical zone demarcation using durable paint and bollards at N-01, N-02, N-03. Public notice boards erected. 10 m vendor-free buffer established at N-02 crossing. Certificates of Vending issued to all registered vendors within zones.	KMC Engineering; KMC TVC; West Bengal Heritage Commission (for N-03)	Months 4-6
Phase 3 N-04 Structural Intervention	One-way traffic conversion of Bertram Street. ROW reallocation to occupied footpath. Stage 2 zone demarcation at N-04 after ROW freed. Juice shop vendors formally allocated spots within 0.7 m vendor zone.	KMC Traffic Engineering; Kolkata Traffic Police; KMC TVC	Months 6-12
Phase 4 Monitoring (Ongoing)	Monthly compliance checks by KMC Ward Officers. TVC maintains a grievance register at each node. Annual review of zone dimensions using pedestrian count data. Certificate renewal every 5 years.	KMC Ward Officers; KMC TVC; Community Representatives	Month 7 onwards

Source: Research Design, 2025; SVA 2014 Sections 7, 10, 21, 22, 23

SPATIAL CONFLICT BETWEEN STREET VENDORS AND PEDESTRIANS

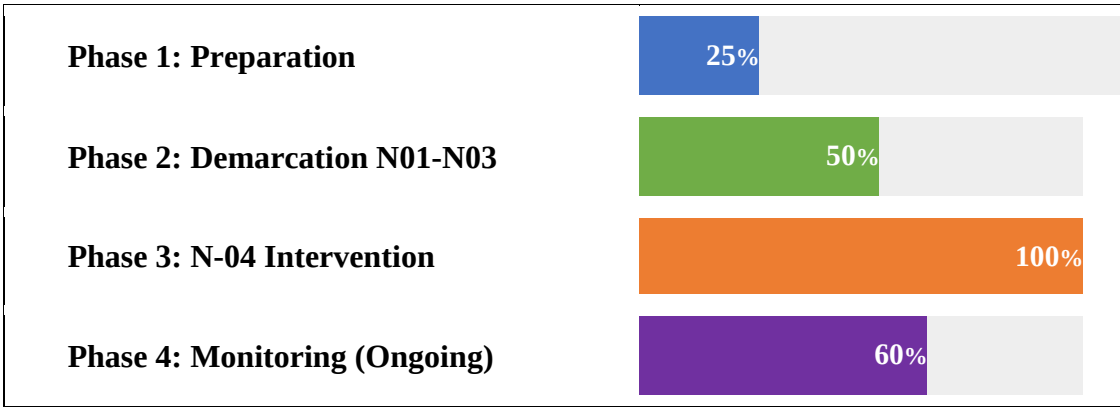


Figure 5.12: Implementation Timeline - Indicative 12-Month Overview

Source: Research Design, 2025 | Bar length indicates relative duration/progress, not exact months

5.7. Expected Outcomes

The table below compares current conditions at each conflict node with the outcomes that the proposal is expected to produce after full implementation.

Table 5.12: Expected Outcomes After Proposal Implementation

Node	Current Road Overflow	Expected Road Overflow After Proposal	Key Change
N-01 Gariahat Mid-block	32.8% (avg) 38.5% (peak)	Below 15%	1.8 m corridor enforced. Semi-mobile vendors confined to 0.7 m zone.
N-02 Gariahat Crossing	33.2% (avg) 35.8% (peak)	Below 12%	10 m vendor-free buffer at crossing eliminates compound peak conflict.
N-03 New Market Entry	37.3% (avg) 41.9% (peak)	Below 20%	1.8 m corridor on Chowringhee Road side. Vendors pushed against building wall.
N-04 Bertram Street	64.9% (avg) 75.7% (peak)	Below 25% (After Stage 2)	One-way traffic frees ROW. 1.8 m corridor demarcated. Opposite side maintained clear.

Source: Research Projection, 2025 | Based on off-peak coexistence data from primary survey

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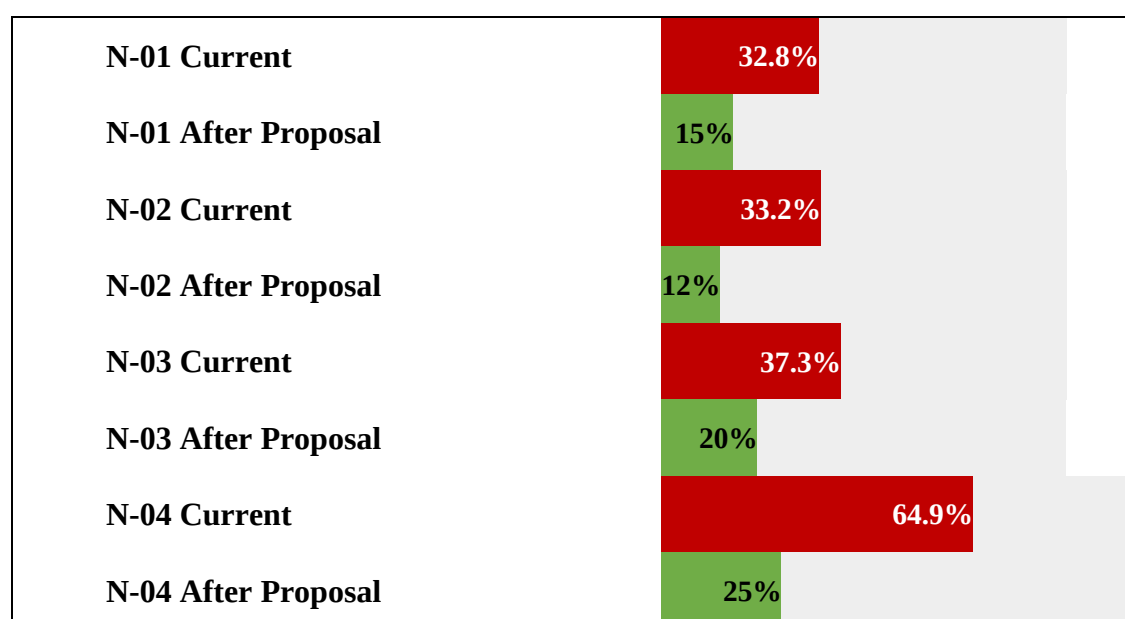


Figure 5.13: Road Overflow % Comparison - Current vs. Post-Proposal (Projected)

Source: Research Projection, 2025 | Red = Current | Green = Projected After Proposal

5.8. What Each Group Gains from This Proposal

One of the most common criticisms of any market street intervention is that it helps one group at the cost of another. This proposal is specifically designed to avoid that. Every stakeholder group gains something meaningful from it.

Table 5.13: Stakeholder Benefits and Adjustments

Stakeholder	What They Gain	What They Adjust To
Fixed Vendors	Legal recognition of their location. A Certificate of Vending that protects them from arbitrary eviction. Formal, documented spatial rights.	Structures must fit within the vendor zone width. Cannot occupy intersection node areas within 10 m of crossing.
Semi-Mobile Vendors	Designated mid-block slots within the vendor zone. Certainty about where they can set up each day. Scheduled access during peak customer hours.	Must set up and clear within their designated slot only. Full setup must be cleared by 20:00 hrs daily.
Mobile Hawkers	Continued access to the market street during off-peak hours. Freedom to move through the vendor zone.	Restricted to off-peak hours (07:00-12:00 and 20:00-22:00). Cannot stop and set up near intersection nodes.
Pedestrians	A guaranteed 1.8 m wide walking corridor at all four nodes. A predictable, safe, and clearly marked path through the market. No longer forced onto the vehicle carriageway.	The footpath is slightly narrower than its designed width (vendor zone takes the remaining 0.7-1.5 m), but it is entirely clear and usable.

Stakeholder	What They Gain	What They Adjust To
KMC / Local Government	A legal, sustainable, and replicable solution that clearance drives have consistently failed to provide. Reduced complaints from pedestrians and residents.	Must invest in TVC activation, vendor survey, physical demarcation works, and certificate issuance. Inter-departmental coordination required.

Source: Research Design, 2025

5.9. Limitations of the Proposal

Every planning proposal has limitations, and it is important to be honest about them so that the proposal can be understood and implemented realistically.

1. Institutional dependency: The entire proposal depends on the KMC Town Vending Committee functioning actively and consistently at the street level. As documented in Chapter 4, the TVC exists on paper but does not currently play an active spatial planning role at either study site. If the TVC remains inactive, the certificate issuance and monitoring systems will not work, and the proposal will lose much of its legal effectiveness.
2. Enforcement gap: Drawing a line on the footpath is only effective if someone ensures it is not crossed. KMC ward-level enforcement is currently under-resourced and inconsistent. Without regular monitoring, vendors may gradually expand back into the pedestrian corridor over time. The community monitoring committee recommended in Phase 4 addresses this partially, but it requires community engagement that cannot be guaranteed.
3. N-04 conditional dependency: The proposal for Bertram Street is conditional on a one-way traffic conversion that requires the approval of the Kolkata Traffic Police, which is a separate authority from the KMC. If this conversion does not happen, the morphological constraint at N-04 cannot be resolved through demarcation alone.
4. Economic conditions unchanged: This proposal organises the vendor-pedestrian conflict on the street. It does not address the structural economic conditions that produce so many vendors in the first place. The large number of vendors on Kolkata's market streets reflects a gap in formal employment.

This proposal makes the conflict more manageable but does not reduce the underlying pressure.

5.10. Recommendations

5.10.1. To the Kolkata Municipal Corporation

1. Activate the KMC Town Vending Committee at the street level. Assign a dedicated TVC officer for Gariahat Road and New Market who is responsible for vendor survey, certificate issuance, and monthly compliance checks at the four conflict nodes.
2. Conduct a site-level vendor survey at Gariahat Road and the New Market perimeter streets within three months. Use the 2024 KMC hawker survey data as a starting point and supplement it with spot-level counts at each of the four conflict nodes.
3. Carry out physical zone demarcation at N-01, N-02, and N-03 within six months of the vendor survey being completed. Use heritage-sensitive materials at N-03 after consultation with the West Bengal Heritage Commission.
4. Issue Certificates of Vending to all vendors registered within the demarcated zones. Make the certificate register publicly available at the Ward Office and on notice boards at each node.
5. Formally notify Bertram Street (the non-vendor side) as a No-Vending Zone under SVA 2014 Section 21, to prevent future encroachment on the clear side of the street.
6. Stop conducting clearance drives at the study sites without first activating the vendor zone system. Drives without spatial alternatives are both unlawful under SVA 2014 Section 36 and demonstrably ineffective, with vendors returning within 48 to 72 hours in every recorded instance.

5.10.2. To the Kolkata Traffic Police

1. Initiate a feasibility study for the one-way traffic conversion of Bertram Street and Hogg Street. This is the prerequisite for restoring a functional pedestrian corridor at N-04, the most severe conflict node in the study.

2. Coordinate with the KMC on the enforcement of the 10-metre vendor-free buffer zone around the Gariahat Crossing at N-02. A vendor-free buffer at the crossing reduces both vehicle-pedestrian and vendor-pedestrian conflict simultaneously.

5.10.3. For Future Research

1. A post-implementation pedestrian count survey should be conducted at all four nodes using the same methodology as the 2025 primary survey, approximately 12 months after zone demarcation. This will allow a direct before-and-after comparison of road overflow percentages.
2. This study's framework - combined vendor and pedestrian survey, typology-based zone allocation, and SVA 2014 compliance assessment - should be applied to other market streets in Kolkata and in other Indian cities to build a broader evidence base for this kind of intervention.
3. Future research should also investigate the income effects of zone demarcation on vendors. This study deliberately excluded vendor income from its scope. Any honest long-term evaluation of the proposal must also ask whether vendors' daily earnings change after their locations are formalised.

5.11. Conclusion

The market streets of Kolkata are not broken because vendors are there. They are broken because the space was never properly organised. The vendors are on the footpath because no one gave them an alternative space within the same street. Pedestrians walk on the road because no one protected the corridor they are supposed to walk on. Both groups are paying the price for a planning failure, not for each other's existence.

The proposal in this chapter is an attempt to fix that failure with the simplest possible tool: a line on the footpath. A line that says: this part is for vendors, and that part is for pedestrians. A line backed by the Street Vendors Act, 2014, grounded in the measurements from the primary survey, and implemented through the institutional machinery that already exists but has not yet been used.

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At Gariahat Road, nodes N-01 and N-02, the conflict is manageable. The footpath is wide enough to accommodate both groups with room to spare, if the vendor zone is demarcated and the node buffer enforced. At New Market Spot 1 (N-03), the historic entry node, the wider footpath and the beautiful market building facade together make a strong case for a well-designed, heritage-sensitive zone demarcation that would actually enhance the streetscape rather than damage it. At Bertram Street (N-04), the challenge is harder, but not impossible. One-way traffic is a practical, low-cost intervention that can free up enough space to make the street work for both groups.

If these proposals are implemented as described, the road overflow percentages at all four nodes are projected to fall significantly. Vendors will have legal documents in their hands. Pedestrians will have a clear 1.8 metre corridor to walk on. And the KMC will have a replicable framework it can apply to the hundreds of other market streets in Kolkata that face exactly the same problem.

The law is already there. The measurements are already done. The only thing left is the decision to act.

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