

Analyzing Walkability Of Commercial Street In Pune

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Abstract

Walking is the most underused form of travel. It appears to be less important in terms of safety because it only have a very small fraction of the overall right of way to move, access, or stroll. There are extremely few or no design considerations for pedestrians on the majority of Pune's streets because pedestrians are few in numbers. This study's objective is to assess Pune's commercial street's walkability. In order to conduct this study, one of the crowded streets in Pune's city centre was chosen. A mixed method approach will be used to collect both qualitative and quantitative data. A visual survey and a pedestrian survey on a chosen street will be used to collect the data. Data about pedestrian infrastructure is gathered visually. Authors attempted to identify challenges faced by pedestrians during walking. Literature from books, newspapers, study papers, and maps is considered secondary data. The results of this study show how important it is to understand the pedestrian infrastructure in order to enable walkability on commercial streets in Pune's city centre. The promotion of walking among the general public and walkability studies will help to accomplish desired outcomes. Finally, the paper concluded in finding walkability index of Laxmi road.

Keywords-Walkability, Commercial Street, Pedestrian, Pedestrian Infrastructure, Pune.

1 Introduction

Many studies have found that a number of variables, such as personal preferences, sociocultural context, and the environment, have an effect on walking. Both the built environment and the natural environment can be regarded as elements of the environment. Walkability was not recognized as a crucial element of effective, accessible, fair, equitable, sustainable, and livable cities until the post-modernist planning era. The risks for pedestrians in the city are rising due to shared right-of-way, footpath encroachment, poorly constructed pedestrian walkways, lack of safe pedestrian crossing facilities at busy intersections, and other causes. The troubles of pedestrians have been threatened by urban development. Pedestrian

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infrastructure is frequently overlooked and underfunded in municipal planning and budgeting. Many pedestrians are obliged to use motorised modes, which are generally regarded as safe. There are still a large number of commuters who, due to their low socioeconomic condition, have to walk lengthy distances and compete for space with motorised traffic. This limits the amount of time and energy they can devote to productive endeavors. Furthermore, in light of current socioeconomic conditions, Pedestrians, bicycles, and other slow-moving vehicles cannot be eliminated from the urban scene in most developing countries like India.

2 Obstructions to walking

In most countries, using walking as a form of transportation has long been associated with negative societal and personal judgements of the physical obstacles or deterrents. To assess the amount and pace of traffic has rarely been done in response to these concerns. In order to prevent any fatalities or accidents, pedestrians have instead been compelled to leave the streets. Despite the fact that between 16 and 58 percent of trips in Indian cities are performed on foot, pedestrians continue to receive inadequate infrastructure, amenities, and services. Most Indian cities only have pedestrian pathways on roughly 30% of their roads, and pedestrians are involved in almost 20% of all traffic accidents (MoHUA, 2008). Dispersed patterns of activity and longer commutes are no longer accessible by foot and made more prevalent by growing number of vehicles on the road. Depending on the physical qualities of the pedestrian system, the walkers themselves, the purpose and context of the travel, and other factors, the distance over which walking may be considered practical can vary by a considerable amount. However, 1-2 kms has generally been regarded as an acceptable average distance in literature. (Godmann& Tolly, 2003)

3 National Urban transportation Policy

In urban regions escalating transportation-related issues may have a negative influence on both quality of life and economic development. So, in April 2006, the Indian government introduced the National Urban Transport Policy (NUTP,2006), which was meant to provide future action with a defined direction and framework. The policy expressly recognises the non-motorized modes' vulnerability in the existing traffic situation in Indian cities (MoUD, 2006). Shared right-of-way for motorised and non-motorized modes, encroachment of footpaths, poorly constructed pedestrian paths and cycle tracks, and a lack of safe pedestrian crossing facilities at busy crossings are the reasons given for increasing risks to walkers and cyclists. Urban sprawl

has also made things worse for non-motorized sources of transportation. The risks involved and increased travel distances have together led to the gradual disappearance of pedestrians and the cyclists from the urban scene.

The emphasis of this policy is on a fair distribution of road space based on people rather than vehicles. Private transportation and non-motorized modes are suggested to use exclusive lanes and passageways. Concerns for pedestrians are mirrored in segregated lanes, improved pavement facilities, and amenities like landscaping that provides shade, the availability of drinking water, and rest areas to combat inclement weather. The policy recognizes the need for an open discussion about the design of these facilities with experts and the community to allow greater use by the potential beneficiaries. The Central Government prioritizes the building of bike lanes and pedestrian pathways in all cities as part of the National Urban Renewal Mission to ensure safety and increased use of non-motorized modes. (NURM). It offers monetary support for the construction of safe pedestrian crossings at busy intersections and high traffic corridors, as also the formulation and implementation of specific area plans in congested urban areas that propose appropriate mix of various modes of transport including exclusive zones for non-motorized transit. The safe and efficient use of non-motorized means of transportation is severely hampered by parking. In order to remove parked cars from the public carriageway in residential areas and provide enough parking for all residents and users of such structures, suitable changes to bylaws and legislation would be taken into consideration. The NURM would give precedence to parking complex proposals as well. The policy aims to promote increased use of NMT modes due to their environmental friendliness by providing Central financial assistance. In order to address the issues of sustainability in urban transportation networks, the policy recognizes the need for coordinated efforts at all levels of governance. It draws attention to the necessity of public involvement and understanding in this matter. It aims to start vigorous awareness efforts to encourage "green travel habits." (MoUD, 2006). The policy emphasizes the necessity of adopting eco-friendly travel practices and urges cities to build appropriate facilities, but it does not expressly outline the specific steps that the state and local government must take. As a result, the policy is advisory rather than attempting to impose any requirements.. Further, walkability is considered mainly for higher hierarchy of roads or on routes to major traffic nodes.

4 Walkability

The built environment's health, economy, and general livability of the region are reflected in the walkability of the area. It's not just about

how far you have to walk; it's also about how connected, convenient, and attractive the neighborhood is. (WALKABILITY INDEX BY GLOBAL WALKABILITY INDEX METHOD) Separated land use, dead end streets, and poorly planned building layouts are examples of places that are undesirable for walking. According to Brad Shaw, a walkable environment is one that is simple to use on foot, has level sidewalks, safe junctions, narrow streets, proper disposal facilities, proper lighting, and is devoid of any obstructions. It is necessary to consider a built-in environment and a local society that discourages frivolity.

5 Walkability Index

An organization called Clean Air Initiative (2011) is engaged in determining the Walkability of Asian cities. They advise taking into account the following characteristics when conducting a poll of pedestrians: Cleaner and wider sidewalks and walkways, as well as less traffic on the roads

- Footpaths without obstacles
- More crossing locations
- Good street lighting
- Accessibility for people with disabilities

You can sum up the primary goal of determining the Walkability index as follows:

- 1) Raising knowledge of the importance of walkability in developing cities.
- 2) Offering incentives to city officials to solve Walkability problems.
- 3) Assisting city planners in comprehending the scope and severity of local pedestrian conditions in comparison to those of other places.

Supplying the data required for city planners to target certain pedestrian-related issues as well as suggestions for subsequent actions. Several researchers and groups have estimated an area's walkability. Here, three of these techniques are presented:

5.1 Global Walkability Index (GWI)

The World Bank employs this technique, which offers a qualitative examination of walking circumstances, including convenience, safety and security, and the level of policy support for the pedestrian environment. The walkability index combines the assessments of pedestrian facilities with ratings from governmental agencies.

5.2 Ministry of Urban Development (MOUD) Method

The Government of India's Ministry of Urban Development (MOUD) created this procedure. They specifically tailored this approach to the

conditions in India. This approach states that the ranking of pedestrian facilities and the availability of footpaths affect the walkability index.

- Walkability Index = $[(W1 \times \text{Pedestrian Facility Rating}) + (W2 \times \text{Pedestrian Path Availability})]$ where W1 and W2 are weights (50% weight for each is assumed).

The following formulas are used to calculate pedestrian facility ratings:

- Pedestrian Facility Rating = Score determined based on opinion on available pedestrian facility According to the MOUD structure, the Walkability Index scale is as follows:

Walkability Index	Characteristics
0.0-0.25	Lowest Walkability Index
0.25-0.50	Low Walkability Index
0.50-0.70	Average Walkability Index
0.70-0.90	High Walkability Index
0.90-1.00	Highest Walkability Index

Table 1 Walkability Index as per MOUD method

The drawback of this methodology is that it is challenging to determine which parameters—such as safety, infrastructure for people with disabilities, comfort, convenience, and amenities—need to be improved. The method only takes into account the length of footpaths that are broader than

1.2 metres.

A pedestrian survey is required to determine the pedestrian facilities rating. Those who are most affected by a city's walkability can express their opinions on the facility's current state and, if necessary, recommend improvements by participating in the pedestrian survey. In order to avoid unjustified bias in the results, it is crucial that these surveys be carried out among local communities. This survey's topics include:

- 1) Footpath width
- 2) Consistency of footpath
- 3) Crossings are accessible
- 4) Upkeep and cleanliness
- 5) Crime prevention
- 6) Accessible infrastructure
- 7) Aspects
- 8) Obstacles
- 9) Footpath surface

The nine factors stated above were rated by pedestrians on a scale of 1 to 5, with 1 being the worst and 5 being the best. Each Level of

Service is multiplied by the length of the surveyed road and the number of pedestrians in order to standardise Level of Services inputs. The findings are averaged across the rows and totaled by the quantity of surveyed stretches. The sum of the unweighted averages for each survey area divided by the total number of survey areas yields the final average. The final rank is derived using a final average that has been determined. A low ranking denotes subpar and insufficient pedestrian facilities.

5.3 Walkscore.com Method

Based on the distance between a resident's home and the closest amenities, Walkscore.com determines a neighborhood's walkability. Find neighbourhoods that are walkable with the aid of Walk Score. By identifying surrounding businesses such as restaurants, parks, schools, and retailers, Walk Score determines how walkable an address is.

- 1) The distance between walkable areas close to an address.
- 2) Establishing a grade for each of these areas.
- 3) Consolidating these results into a single, simple-to-read Walk Score.

The walk score ranges from 00 to 100. The general criteria for assessing the walk score are listed below:

Walk Score	Characteristics
90-100	walker's paradise: owning a car isn't necessary and most of the errands can be done by walking.
70-90	very walk able; owning a car isn't important.
50-70	some walk able locations; some amenities might be at a walk able distance but everyday errands must require proper transportation facilities.
25 - 50	Not Walkable; only a few destinations are within easy walking range. For most errands, driving or public transportation is a must.
0 - 25	Driving only; virtually no neighbourhood destinations within walking range. You can walk from your house to your car.

Table 2 Walk score Guidelines

In contrast to Global Walkability Method and Walk Score Method for calculating Walkability index, Ministry of Urban Development (MOUD), Government of India's Walkability Index is the most appropriate approach that may be used to determine the walkability index of the chosen case study.

6 Research Methodology

In addition to secondary sources, this study also makes use of primary sources that were gathered from the case study region. Along with the primary data that is gathered from the site and analyzed, the secondary resources integrate scholarly literature study with national and worldwide comparisons. A mixed methodology has been utilised in this study since both qualitative and quantitative methods were used to gather the data and analyse the results. To guarantee obtaining the most accurate findings and conclusions, they will work in tandem.

7 Units of Study

Data from one of Pune's commercial streets is presented in this study on two levels, including the macro-level typo-morphology of the street design, which encompasses the street unity, street pattern, land usage, spatial structure, enclosure, etc. Drive-by, walk-by, photography mapping, movies, and time-lapse photography using a Go-Pro camera had all been used to gather this data. An analytical depiction of the business street is what this kind of inquiry is. Data is gathered on the individual street blocks or street segments at the micro level. Smaller-scale street design, as well as its physical and sociological characteristics, are also included in this and are organised and prepared following the initial site visit. In addition to the questionnaire, this information is utilized to identify the street components and characteristics, such as green spaces, street furniture, sidewalk width, the architectural themes of the shop fronts, etc., that may affect how users perceive the street.

8 Data Collection Strategy

In order to explain the physical and social characteristics of the street layout, the responses of the users, and to gauge the vitality of the streetscape, the fieldwork strategy used a mixed approach and the visual perception technique. Along with direct observation, there were also drive-by and pedestrian observations made during the observation. To map people's experiences on the sidewalks of the commercial streets and to keep track of the usage of, or conflicts that developed over, the areas, detailed field notes and sketches have been made. Verifying the street's facilities, land use, unoccupied properties, and range of uses requires observation of people's behaviours, social groups, mobility patterns, and interactions with one another in connection to the physical environment.

9 Questionnaire and Interviews

As aspirations are difficult to discern through direct observation, semi-

structured and unstructured questionnaires with street users are used to supplement the observational data. To collect the necessary data to analyze and develop a framework for creating public spaces in Pune's commercial streets, two surveys have been developed (Annexure). The first questionnaire is sent to the owners or landlords of the businesses who manage them, and the second is sent to the customers and employees who are seen on the street. The findings of these polls should show how satisfied individuals are with these issues and what they still require.

10 Study Area Delineation

The CMP (Comprehensive Mobility Plan for Pune City, 2008), which this thesis is partially built upon and receives its physical delimitation from, contains it and it has been discussed for a number of years. The suggested stretch in the CMP is around 2.7 kilometres long. As a case study location, a shorter section of the street—about 1.3 km—between Shivaji Road and the Tilak Chowk five-way intersection was picked. One of Pune's most well-known avenues, Laxmi Road, is fascinating to study because of how heavily it is changed by cultural events and festival seasons. There is a neighbourhood called Tulshibag near Laxmi Road with narrow lanes. The area is crowded with vendors and tiny shops offering jewellery and clothing of varying quality. The Mahatma Phule market, also known as Mandai, is a fruit and vegetable market located close to Laxmi Road. There is a street passage between Mandai and Shivaji Road that is crowded with merchants who are either sitting on blankets on the ground or selling goods from handcarts, bicycles, etc.

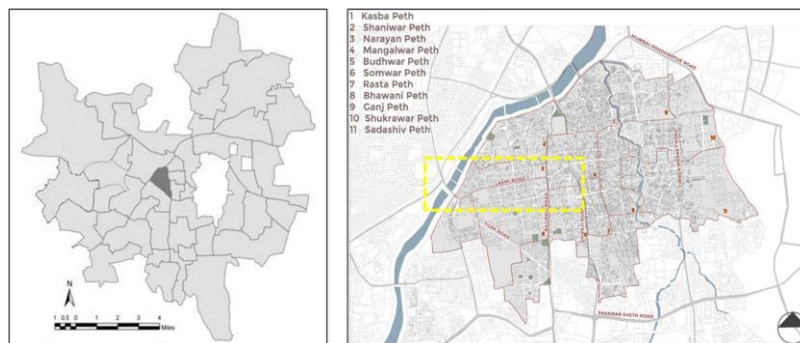


Figure 1 Laxmi Road precinct

11 Analysis of Laxmi Road

11.1 Street Characteristics-

Laxmi road is a totally a commercial street with shops of clothing, jewellery, kids toys etc on both sides of the street. Laxmi road is a very

busy street as there are not only people who come for shopping purpose but also have passer-by population which increases the traffic congestion and also the load on the street. This street stretches from Tilak chowk to Narayan Peth road, and has commercial as well as mixed land use. The street has two-sided footpath with a number of obstacles for pedestrians like narrow path, uneven surface, utility boxes, encroachment by hawkers and shopkeepers etc. It also has one sided on- street parking of two –wheelers which decrease the width of carriage-way as well as footpath .



Photo 1 Laxmi road- The Commercial Street

Back alleyways and courtyards are typically private or semi-private although the roadway is a public area. The entire length of Laxmi Road is lined with sidewalks. Yet, street sellers and other activities routinely damage and occupy sidewalks. A 90-cm-high fence is constructed in most places to keep people and cars off the sidewalk, which is around 1.5 metres wide. Vehicles and two-wheelers are parked close to the railing. Frequently, parked cars force pedestrians to walk around them. Traffic on the one-way roadway moves from east to west. Before 9:30 am, there aren't many cars parked on the street. As the stores open at 10 am, finding a parking spot becomes challenging. With rare exceptions during the holiday seasons when they are open longer, the establishments are normally open Tuesday through Sunday.



Figure 2: Map highlighting Laxmi Road (Source- Authors)

12 VISUAL SURVEY ANALYSIS

12.1 Building Use (Precinct)

Strong mixed-use typology is indicated by the use of the building. Public structures like the Huzurpaga High School and Numavi etc. act as street drawers. Similar in structure, the core city area consists primarily of residential and commercial buildings, with a few public and semi-public structures. The most well-known kind of stores that have made Laxmi Road renowned are those that sell sarees, other textiles, and apparel supplies. There are also a lot of jewellery stores, which become quite important during the popular wedding seasons and around several festivals. Several stores offer a variety of clothing, footwear, electronics, kitchenware, and other goods. There are also snack bars, and there are several street sellers and hawkers selling both clothing and food along the streets. multiple commercial typologies. There are also snack bars, and there are several street sellers and hawkers selling both clothing and food along the streets. The streets become more attractive to walk along when there are a variety of commercial typologies on the bottom floor.



Figure 3: Map highlighting Building use precinct (Source- Authors)

12.2 Built Unbuilt (Precinct)

Shop entrances are next to one another along the street borders, which are entirely built up. The street has a backdrop of outdated planning and is very porous. The houses share numerous walls because the building is so dense. At a crossroads, the street slightly widens, forming a compact square. A few tall trees are protruding over the wall. Laxmi Road does not have a lot of vegetation, other from that and a few trees on the little square and in a few courtyards. Commercial is located on the bottom floor facing the streets. Several homes only have access to the street through their courtyards and back alleyways. In each block, there is frequently something public or semi-public, such as a school and/or a temple. Buildings can be accessed directly from the street or by courtyards, arcades, and back alleys. Many of the residences in the deeper blocks on the north side of the street can only be accessed by constrained lanes. Most of these homes are used for residences.



Figure 4. Built Unbuilt proportion of Laxmi Road

12.3 Density

On Laxmi road, there are several old structures that have been transformed into commercial complexes. They are different from G+1, G+2, and higher structures. Plans from neighbouring properties might be combined for commercial purposes. The building construction is not as dense as the other blocks along Laxmi Road and much of the central city. Particularly in the direction of Laxmi Road, many stores have two or three floors, although it is also typical to have residential space above and business space below.



Figure 5. Density mapping of Laxmi Road precinct

12.4 Existing Traffic Movement

Alka Talkies Chowk is reached by the one-way Laxmi road. The road includes footpaths on either side for hawking, food carts, and street vending. Laxmi Road has traffic flowing east to west, while R.B. Kumthekar Road, a parallel route slightly south of Laxmi Road, has traffic flowing in the reverse direction. Yet construction, street sellers, and other activities frequently cause damage to or occupy the sidewalks. The sidewalks are roughly 1.5 metres wide, and most locations have railings that are 90 cm high to prevent vehicles from driving on the sidewalk and pedestrians from walking there. Parking spaces for vehicles and two-wheelers are close to the railing. The parked cars frequently push the pedestrians aside. However, there are two sizable parking structures right close to the market, which creates backups at the entrances and exits. People on foot, people riding motorcycles, and people driving automobiles to parking garages all share the same street.



Figure 6: Existing traffic movement at Laxmi Road precinct (Source-Authors)

12.5 Typology

Throughout the day, activity patterns can be seen due to the location's several functions. The build forms' perception of security opens up new chances for providers. In the central city region, there are numerous historic structures constructed in what is known as Wada architecture, an antique Maharashtrian design. Particularly around the end of the eighteenth century, this was the typical residential design for the wealthy (Diddie and Gupta, 2000, p. 81). Examples of these include Vishrambaug Wada, Kesari Wada, and Shaniwar Wada. The structures frequently have two stories and square interior courtyards that are encircled by columns. Often, there are no windows facing the streets on the bottom floor. For adornment, numerous wood carvings were created. Some of these old structures are still standing. Since the social structure and the wadas were intertwined, issues arose as the social structure evolved over time. Several of the older structures are compact and intricately designed. The street is exciting since there is always something fresh to explore. These characteristics are lacking in some of the newer structures. These buildings' commercial bottom floors somewhat make up for their massive construction by adding small-scale elements to the street. Because of the business activity, the streets are crowded with people, which clogs up traffic. Frequently, there are so many people in the area that no vehicles can pass. The Mahatma Phule market, also known as Mandai, is a fruit and vegetable market located close to Laxmi Road. In addition to the regular merchants, there are numerous seasonal stalls set up in this area that sell goods tailored to the next holiday. There is a street passage between Mandai and Shivaji Road that is crowded with merchants who are either sitting on blankets on the ground or selling goods from handcarts, bicycles, etc.



Figure 7 Typology and Observed activities at Laxmi Road precinct

12.6 Vegetation

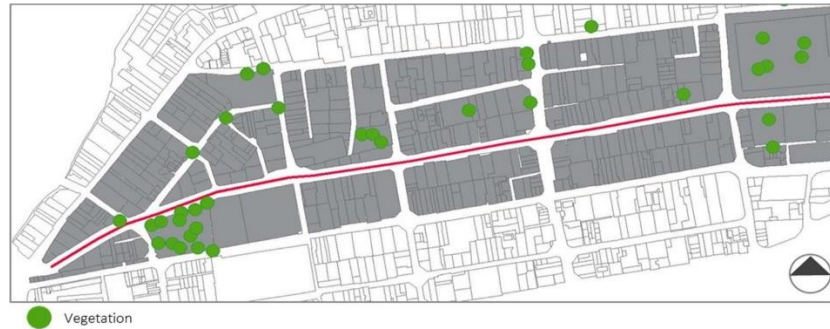


Figure 8. Vegetation cover in Laxmi Road

Laxmi Road is devoid of vegetation. The path doesn't have a lot of trees. As the street is relatively narrow and the buildings are of average height, there is only a brief amount of time when the street is under shade. Expanding the plant cover along Laxmi Road and other nearby pathways is essential.

12.7 Existing Road Section

- The road is clogged with cars at rush hour, making it difficult to stroll.
- On this street, parking is a challenge.
- When vendors enter the sidewalk, it becomes difficult for people to walk on it.
- Some sellers prefer to sell their wares while walking along the street, which creates platforms for both pedestrian and vehicles.

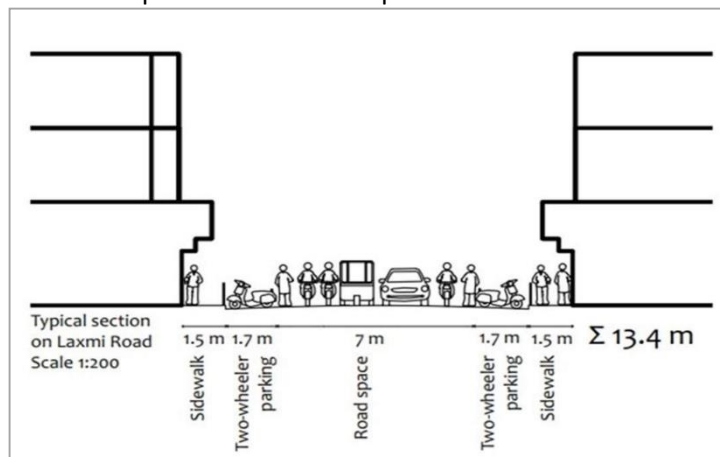


Figure 9 Typical Street Section from Laxmi Road

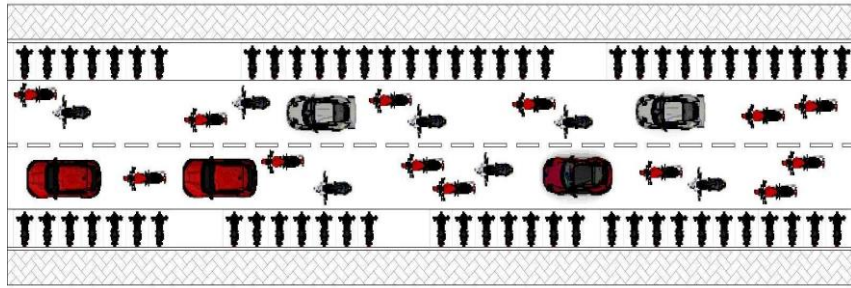


Figure 10 Existing Road Plan

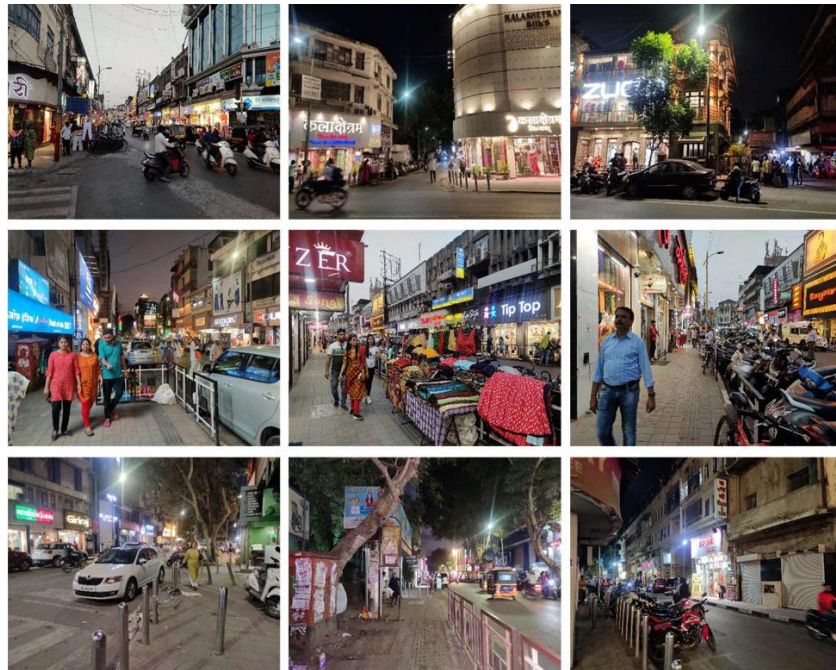


Figure 11 Images from Laxmi Road

13 Questionnaire and Interviews

13.1 Obstacles faced by pedestrians while walking in study area

The graph below show obstacles faced by pedestrians while mobilizing on Laxmi road. The major obstacles faced by pedestrians are presented in the photographs ahead.

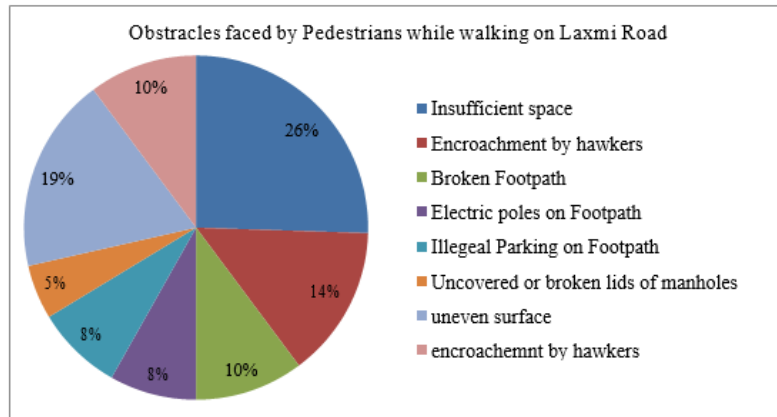


Figure 12 Obstacles faced by Pedestrians while walking on Laxmi Road

The hawker analysis was done for Laxmi road. Hawkers were minimum before 10 am and was increasing from 11 am onwards. Highest number of hawkers were seen at evening time which gain declines after 9.30 pm.

14Stakeholder Surveys

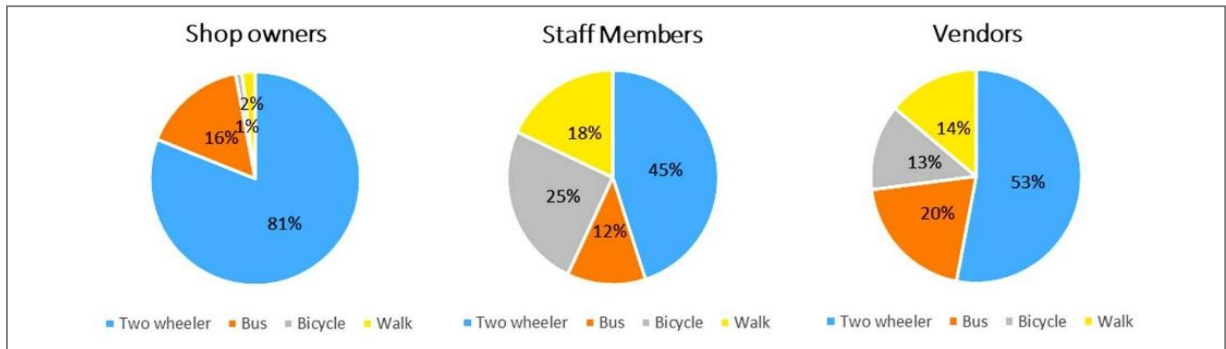
Stakeholder Consultation for 50 people was taken in which 30 Shop owners, 14 staff members and 6 vendors were consulted. The sample consists of random shops selected along the stretch of Laxmi Road. Laxmi road has a higher proportion of garment shops followed by jewellery shops and shoe shops.



Figure 13 Stakeholder split surveyed for the research

14.1 Mode of Transportation used by the shop owners and staff members to reach Laxmi Road

It was conveyed by the shop-owners that the customers somehow manage to find a parking in connecting lanes or parallel streets or designated parking areas provided by the PMC. It reflects that most of the shop-owners park, vehicles in front of their own shops. And hence



finding a parking for customers becomes difficult.

Figure 14 Mode of Transportation used by Stakeholders

14.2 Do all customers get to park their vehicles nearby or in front of shop? Shop owners' opinion on street vendors?

Shop-owners opinion on street vendors was asked to since there arises high conflict between these two stakeholders, both being important for pedestrians and economy of the city. The authority has to have different strategies for their benefits and co-existence. It was majorly observed during site visit that garment and shoe mart shop owners had major worry about the vendors since Laxmi Road majorly has garment and shoe selling vendors.

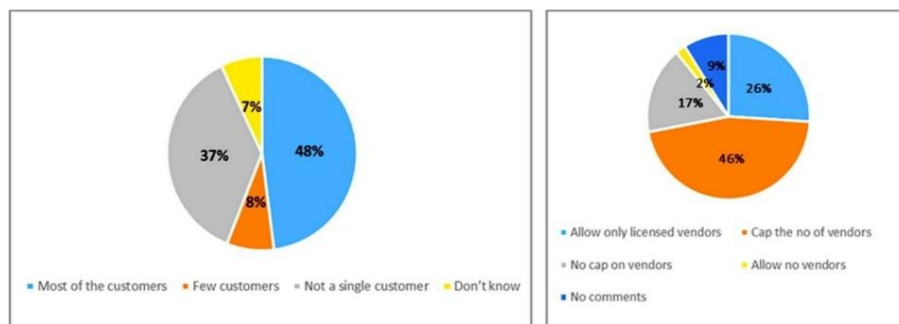


Figure 15 parking of customer vehicles

14.3 What are the major issues faced by the customers as per shop owners?

The main problems addressed by the shop owners are the difficulty in finding parking and the inconvenience caused by traffic. Due to a lack of parking management, individuals choose to standby their vehicles on road, resulting in double parking and further worsening traffic

congestion.

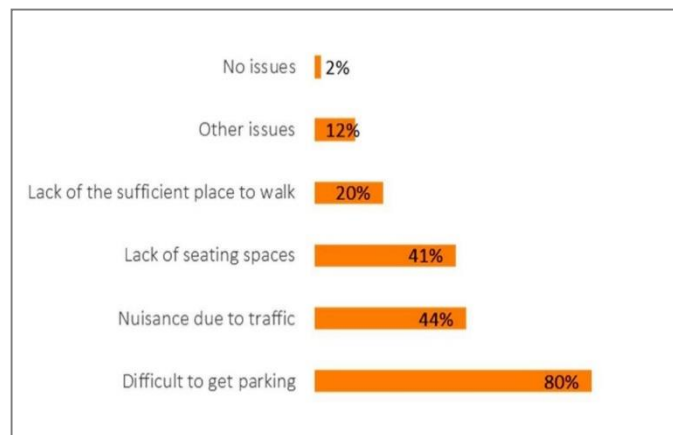


Figure 16 Major issues faced by customer

14.4 Does crossing of street to access your shop has an impact on overall footfall? According to the visitors' observations, the decision poses an impediment for pedestrians and forces them to walk on just one side of the pathway. They are openings to cross the roadways at several spots. However, owing to the high volume of traffic, crossing the roadway becomes difficult for pedestrians.

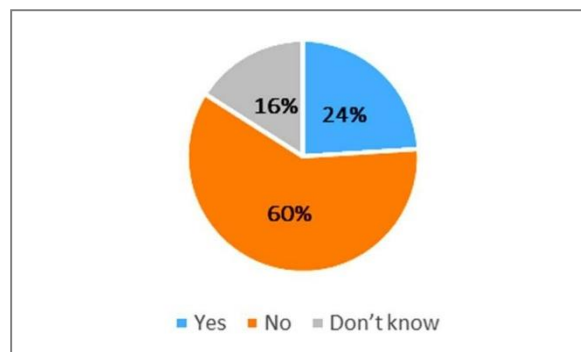


Figure 17 Impact of crossing of street on overall footfall

14.5 How would you imagine the street to be in future?

It was observed during the survey that most of the shop-owners having establishments older than 30 years suggested no change along the Laxmi Road which consists 43% of the total sample. While 53% vendors were for pedestrianization.



Figure 18 Pedestrian rating map of Laxmi Road

15. Walkability Index of Laxmi Road

- Walkability Index = [(W1 x Availability of footpath) + (w2 x Pedestrian Facility rating)]
- Availability of footpath = Footpath length / Length of major roads in the city
- Pedestrian Facility Rating = Score estimated based on opinion on available Pedestrian facility
- Walkability Index = [(0.5 x 7494/13497) + (0.5 x 2.09/20)] = 0.30
- Availability of footpath = 7494/13497 = 0.5
- Pedestrian Facility Rating = 2.09/20 = 0.1

Therefore, the walkability for Laxmi Road precinct through MOUD method came out to be 0.3 and hence the street is having low walkability index. (Refer table 3)

Attributes	Rating					Avg. Score
	1	2	3	4	5	
Walkway height is reasonable						3
Walkway width is adequate						4
Surface is smooth and regular						4
Walkway is continuous						2
Provisions of ramps connecting to carriageway						2
Illumination at night time is sufficient						3
Traffic separator like pipe railings provided						1
Complete width is available (free from obstructions)						4
Walkways are maintained and cleaned						3
Raised continuous crossing facility is provided						1
Walkway is available on appropriate side of carriage						4
Average						2.82

Table 3 Pedestrian rating of Laxmi Road as per MOUD Method

Laxmi road has low walkability index despite which it caters to a huge pedestrian footfall. It is due to the allied land use that is commercial and due to the multiplicity of activities observed on the road. It addresses the need of people belonging to all walks of life. The street is designed keeping in mind the human scale with respect to the building heights and distances along with providing high legibility to people. The street offers diversity to the visitors and those offering services to the vendors i.e., shopkeepers and vendors.

Though the street is found to have low walkability index due to lack of parking management, discontinuity in walkway, lack of crossing facility and obstruction due to street vendors.

16 Conclusion

Laxmi Road is very accessible because of easy connectivity due to multiple public transportation options ranging from auto rickshaws and buses. People prefer walking here due to the commercial nature of the street. The street can be termed attractive due to the unique details of old buildings. Although the street furniture is in poor state. There are not places to sit and road signages are not found anywhere. Pedestrian infrastructure is average because the width of footpath is not sufficient, vendors occupying the footpaths also brings obstructions while walking. There are no traffic calming measures adopted in the street. Laxmi road is not rich in vegetation though people prefer to walk due to allied landuse and informal activities.

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