

Building A Pedestrian City 

INDORE A PLACE FOR PEOPLE





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Clean Air Portal

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FOREWORD

THE CITY OF INDORE IS UNDERTAKING A SIGNIFICANT ROAD UPGRADE EFFORT.

As part of JNNURM, major feeder roads in the city have been widened and paved, and on many roads footpaths have been constructed. This report is intended as a mid-project evaluation of pedestrian infrastructure on the improved roads. The report aims to highlight pedestrian design successes in Indore so that other cities may learn from the example. At the same time the report seeks to identify areas for improvement in not yet completed roads and to outline simple retrofits for completed roads that can improve pedestrian safety and convenience.

EMBARQ transport planners and engineers Matthew Bomberg and Prajna Rao evaluated pedestrian infrastructure in Indore in June-July 2010. The evaluation consisted of a series of field visits to Indore and discussions with municipal corporation engineers. Based on preliminary visits, a sample of eight streets was selected and a scoring framework was developed to assess improvements. A detailed audit of the "walkability" of these eight corridors was then performed. From this audit, more general successes and areas for improvement are identified.

In addition to the detailed audit, three streets have been selected as case studies. These streets are plagued by obstructions on pedestrian footpaths, instances of roadspace not being used as intended, problems which cause all road users to move less safely and efficiently. The case studies illustrate how a reallocation of roadspace combined with the use of certain pedestrian design features can improve the experience of all road users.

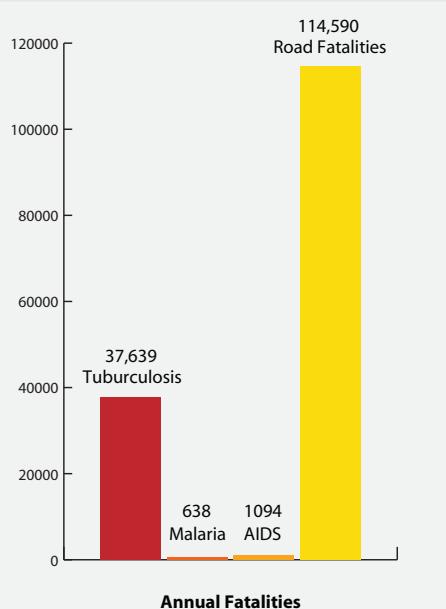


Photo Credits: Times Square: New York City Department of Transportation. Mercaderes Street: Ethan Arpi, EMBARQ.

GREAT CITIES PLAN FOR PEOPLE, NOT CARS.

Pedestrians have been an afterthought in the transportation planning process in most cities, not only in India but across the world. Amidst rapid economic growth and motorization, road space in cities that traditionally accommodated pedestrians comfortably has been given unabashedly to motor vehicles.

The lack of attention to pedestrians has created a safety and public health crisis. Statistics from the National Crime Records Bureau show that in 2007, the most recent year for which data is available, there were 114,590 road accident deaths in India. A report from the Transportation Research and Injury Prevention Programme at IIT Delhi finds that, after correcting for under reporting to police, the injury toll could be as high as 1,200,000 persons requiring hospital treatment and 5,600,000 persons sustaining minor injuries. The mortality rate per 10,000 vehicles is as high as 14, compared with 2 in most developed countries. Annual fatalities from road accidents dwarf those from other salient killers such as tuberculosis, malaria, and AIDS, (37,639, 638, and 1094, respectively)



Pedestrians are especially vulnerable on Indian roads. 10,125 of the deaths from road traffic accidents, or 8.8 percent, were pedestrians. This is an astonishing number of deaths to come from an activity as basic as walking. Even more upsetting than the number of deaths is the fact that many result from pedestrians being forced to walk in the vehicle carriageway because a road lacks appropriate footpaths, or because the footpaths are too obstructed to be useful. Poor planning has implicated pedestrians in the Indian road safety crisis.

Aside from the safety toll, the lack of attention to pedestrians represents a severe **mismatch between resources and road users.** In most Indian cities, walking accounts for a significant fraction of trips. In Indore, the walking mode share is 27%. A better way to look at the problem might be to realize that all citizens are pedestrians at some point. Even trips by other modes include walking trips at the beginning and end. It is not a small minority group bearing the cost of the lack of adequate footpaths.

It is important to realize that inattention to **pedestrian infrastructure affects not just walkers, but motorists too.** When pedestrians are forced to walk in the street because a footpath is absent or obstructed, the result is a narrowing of the roadway that diminishes vehicle movement space throughout. When pedestrians are forced to dart through traffic because no proper crossing opportunities have been constructed, it is motorists who must be on guard. Though pedestrians are more vulnerable in crashes motorists also bear the liability. Construction of proper pedestrian infrastructure will benefit all road users.

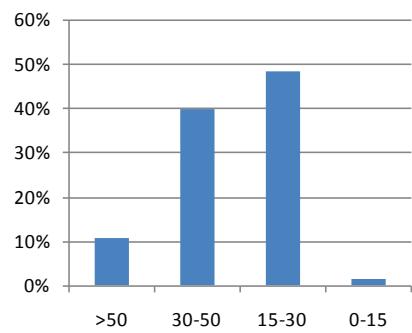
As India rapidly motorizes, resources are being poured into widening and resurfacing roads while footpaths are neglected. The message sent by such actions is that pedestrians have no place in India's future. Given the already pressing problems of congestion, air pollution, and parking shortage, **the priority in Indian cities should be to make roads which reduce these social costs;** building roads while neglecting footpaths conveys exactly the opposite message.

INDORE BY THE NUMBERS

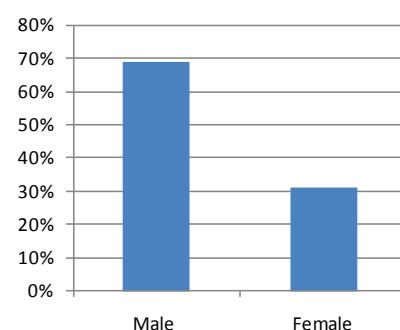
INDICATOR	VALUE	RELATIVE TO OTHER “NOW EXPLODING”* CITIES	RELATIVE TO OTHER METROPOLITAN CITIES
Population density	13,127 people/km ²	+	+
Median household income	2850/month (Rs)	-	-
Per capita trip rate	1.49 trips/person/day	+	+
Per capita trip rate excluding walking	1.04 trips/person/day	+	+
Average trip length	5.6 km/person/day	+	-
Average trip time	27 min/day	+	+
Walking mode share	27%	-	Avg
Bicycling mode share	20%	+	+
Public transport mode share	16%	-	-
Private transport mode share	37%	+	+
2 wheeler ownership	230 veh/1000 people	-	-
3 wheeler ownership	6 veh/1000 people	-	-
4 wheeler ownership	27 veh/1000 people	-	-

SOCIO-ECONOMIC PROFILE

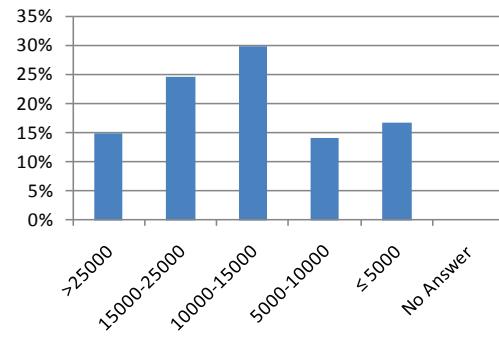
A brief socio-economic profile of the respondents is given below to get a better understanding of the survey (graphs 1, 2 and 3). We interviewed around 165 (53%) males and 145 (47%) females for the survey. A large number of people were interviewed in the age group of 15 to 30 (45%) and those in the age group of 30-50 years made up 35%. A large number of citizens interviewed had an income of more than Rs. 25000 / month (110 out of 277 – did not provide this information) and 68 people had an average income in the range of Rs. 10000 to Rs. 15000 / month.



Graph 2: Age of pedestrian commuter



Graph 1: Percentage of pedestrian commuters



Graph 3: Comparative income graph

* Pai, M. (2008) “Transport in Cities: India Indicators” Accessible at: <http://www.embarq.org/sites/default/files/India-Transport-Indicators.pdf>

नि शुल्क विक्रिता परामर्श के लाभ लेवे

क्षमी स्ट्रिकल डॉल

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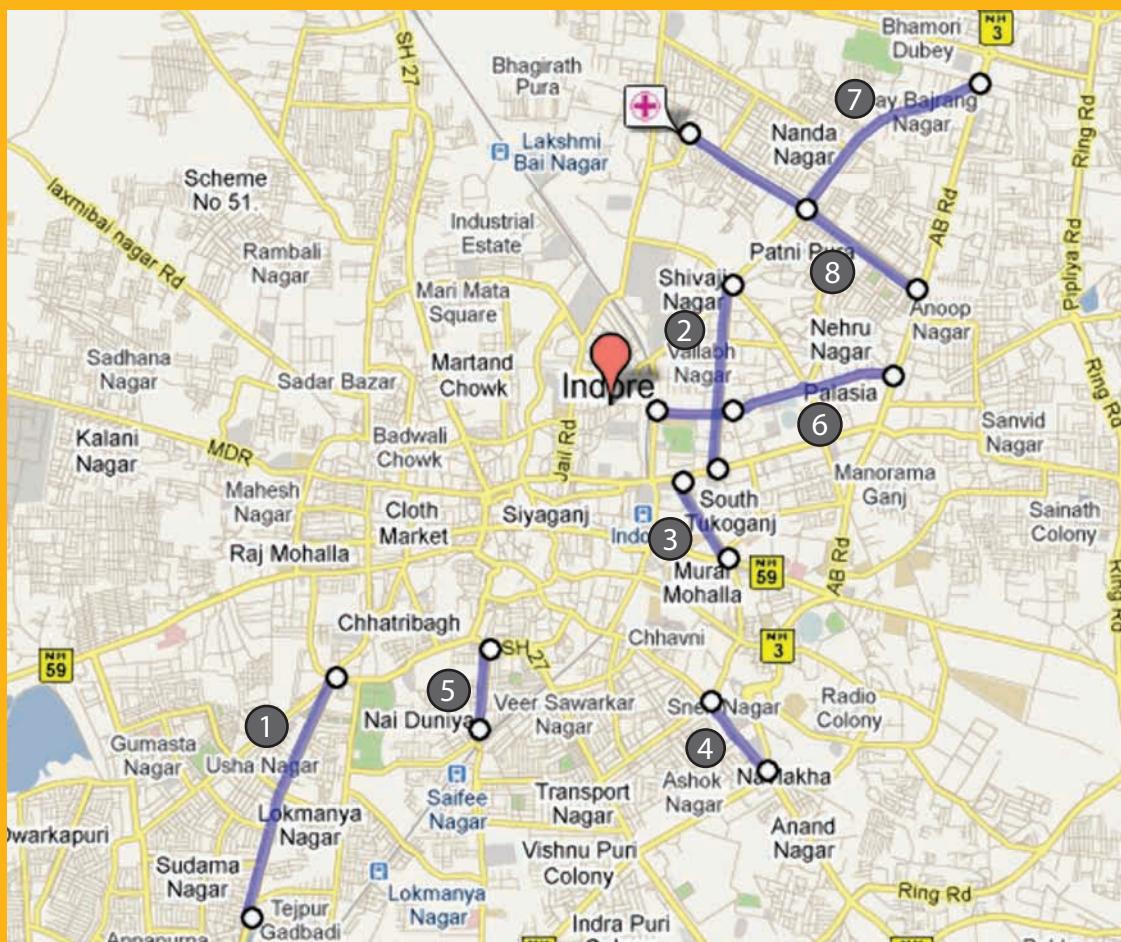


EVALUATION FRAMEWORK

SELECTION OF ROADS:

As a first step, the roads have been assessed for their current usage by pedestrians through a common framework. This has been taken forward to point out the success in the present 'road upgrade effort' and what immediate and future challenges lie ahead.

The criteria were identified based on a review of auditing tools developed for other pedestrian infrastructure evaluations and experience with Indore's roadways. Each criteria was given stars - 1 (worst) to 5 (best) scale. The framework distinguishes between criteria which are achieved through design only, and criteria which include a component of enforcement and proactive design. Responsibility for creating quality pedestrian conditions lies with both city engineers and traffic police; this structure will help relevant parties identify areas of need.



1 - Annapoorna Road

5 - Manik Bagh Road

2 - YN Road

6 - Racecourse Road

3 - RNT Road

7 - New Diwas Road / Malwa Mill Road

4 - Navlakha Road

8 - HIG Main Road / Batu Minas Road



DESIGN ONLY

+

ENFORCEMENT & DESIGN

PAVEMENT***Path provision***

Is there a footpath present for the entire length of the road?

Path surface condition

Is the path well maintained? Are there tripping holes, cracks, or other tripping hazards? Is the footpath traversable in rain?

Path width

Can the path accommodate the traffic present? Do pedestrians have adequate space when walking? Is there space for faster walkers to pass slower walkers or to walk in contraflow direction?

CROSSING***Crossing opportunities***

Are there sufficient opportunities to cross the road? Do pedestrians have to walk too far to the nearest crossing opportunities? Are there crossing opportunities at major activity centers? Is there a high temptation to jaywalk?

Crossing wait time and ease

Do pedestrians have to wait too long for a safe gap in traffic to cross? Are there traffic control devices if traffic volumes are high? Is the wait time from the control devices too long?

Crossing distance

Do crossing distances leave pedestrians exposed to vehicles for long? Are there refuge medians if a road is very wide? Does the width of the motor vehicle lanes make the road feel like an insurmountable barrier?

AMENITIES***Lighting***

Is there adequate lighting at pedestrian level?

Coverage

Is there protection from the sun and rain, in the form of tree cover, awnings, or arcades?

Overall maintenance and presence of Street Furniture

Is the walking environment inviting, stimulating, and pleasant? Are pedestrians' physical needs met (resting places, drinking fountains, etc.)

OBSTACLES***Obstacles***

Do permanent fixtures like street furniture, utility boxes, or bus stops obstruct the pathway? Is the effective width greatly reduced?

BUILDING INTERFACE***Building interface***

Are adjacent businesses encroaching on the footpath by using it for product displays, signs, industrial activity, etc.?

Hawker conflict

Are there vendors obstructing the pathway where it would otherwise be clear? Does the presence of vendors cause pedestrian conflict or force pedestrians to walk the road?

MOTORIST BEHAVIOR***Motorists speeding***

Does the speed of traffic create a walking environment that is unsafe? Is there a posted speed? Is traffic travelling above the posted speed?

Motorists yielding

Do motorists yield the right of way to pedestrians at crossings? Do motorists check for pedestrians before making turns?

Parking obstructions

Are motor vehicles parked in the pathway?

Garbage/cleanliness

Is there garbage in the pathway? Is there foul odour?

SECURITY

Does it feel safe to walk on the street? Is there an appropriate security presence, or alternatively, is there safety from a high level of street activity (numerous watchful eyes)?



ANNAPOORNA RD.

Starts from Dussera maidan and ends at Mhow naka

Length - 2.2km | Lanes- 4

Locality - Middle income locality. This road serves residential colonies like Usha Nagar, Revenue colony, Sachchaidananda Nagar.

Traffic - Light and heavy vehicular traffic.

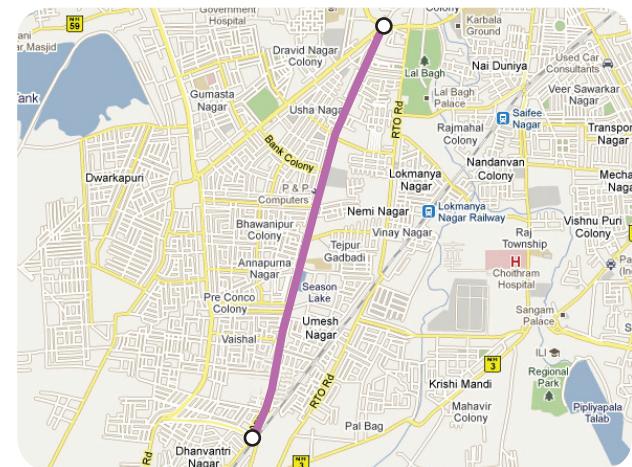
Road condition - Good.

HIGHLIGHTS ★★★★☆

Footpath: The footpath is present for 90% of corridor. It is in good condition and is generally 3m wide.

Crossing: Crossing opportunities are present every 300m to 500m.

Carriageway: A NMV* lane is present for majority of corridor. This lane shortens the crossing distance and provides a buffer between pedestrians and vehicles. The carriageway (2 lanes per direction) is narrower than other comparable streets. This improves safety for all users through moderate vehicle speeds and reduced wrong direction driving.



Building Interface/Parking/Amenities: Corridor has many open storefronts which directly face the footpath. This interface creates an engaging environment for pedestrians and contributes to security with more eyes on the road.

The biggest challenges are parking obstructions, excessive business spillout, and built obstacles which include bus stops and speed limit signs.

*NMV lane- Non Motorized Vehicle lane

PATH PROVISION

★★★★★ Path Provision

- Footpath present for majority of the length.
- Except for a few stretches where footpath disappears abruptly for about 20m.



This footpath is a good width for comfortable passing. The surface is in good condition and the NMV lane provides a buffer from motorized traffic.

In several places, the footpath narrows to a negligible width.

□ ★★★★★ Surface Condition

- Tile in good condition.



Drastic curb cuts for driveways such as this one make walking more tiresome and inconvenient.

This low turning radius of the curb makes crossing distances reasonable and moderates the speed of turning vehicles.

CROSSING

★★★★★ Crossing Spacing

- Crossing opportunities every 300m to 500m.



This wide curb radius means a longer distance for pedestrians to cross. Also that pedestrians are more at the periphery of drivers' field of vision causing potential risk of collision.

★★★★★ Waiting Time and Ease

- Traffic volumes relatively low, its easy to find gaps.
- No crossing aids (traffic calming, signals)

★★★★★ Crossing Distance

- Non-motorized vehicle lane shortens crossing distance.
- Refugee median provides no mid-crossing assistance.

BUILDING INTERFACE

★★★★★ Building Interface

- Many sections with open store fronts offer engaging environment and safety to pedestrians.

★★★★★ Business Spillout

- Motorcycle dealers and other shops use footpath for displays and have built awnings that must be walked around while cafes put tables and chairs in footpath.



This façade engages pedestrians – it is directly adjacent to the footpath and provides shopping opportunities.



In cases, when the full right of way is not available rather than building a street with no footpath, the MV space should be narrowed.



Signs and business displays make the footpath unusable.



This awning forces pedestrians off the footpath.

AMENITIES

★★★★★ Lighting

- Center mast lighting not at pedestrian level but lights footpath completely.

★★★★★ Coverage

- Inadequately shaded footpath because of the lack of trees.

★★★★★ Overall maintenance and presence of Street Furniture

- Footpath looks well maintained.
- No street furniture is provided.



A number of vegetable stalls are located past Annapoorna Temple where the footpath ends. This appears to be an established spot for this trade that provides all types of people with fresh fruits, vegetables etc. If/when a footpath is provided here (and it should be) consideration should be given to the longevity of this spot, considering the role of these hawkers as service providers, and the importance of this particular spot to the success of the vegetable hawkers. The motor vehicle (MV) lanes here are very generous and traffic volumes are low. It is likely possible to fit both 2 lanes of traffic and a wide footpath that can accommodate vegetable vendors and pedestrians; such an option should be considered.



OBSTACLES

★★★★★ *Obstacles*

- Utility poles are well located.
- Problems with sign boards, dumpsters, and bus stops that completely obstruct footpath.



Redesigning of signposts recommended.



Utility poles are well located but bus stops completely block the footpath.

PARKING

★★★★★ *Parking obstructions*

- Rampant 2-wheeler parking on footpath.
- Some problems with 4-wheelers parking in driveways but stopping in a place that blocks footpath.



Peripheral spaces such as this one make good locations for unobtrusive 2-wheeler parking.



The non-motorized vehicle space is quite generous for bicycles, likely to get misused for parking vehicles.



Mountable curbs turn the footpath into a parking lot.



Two-wheelers obstruct this footpath completely.



YN ROAD

Connects Malwa mill area to MG Rd.

Length - 0.8km | Lanes- 6

Locality - Low and middle income locality.

Traffic - Heavy vehicular traffic through out the stretch.

Pavement condition - Newly constructed pavement.

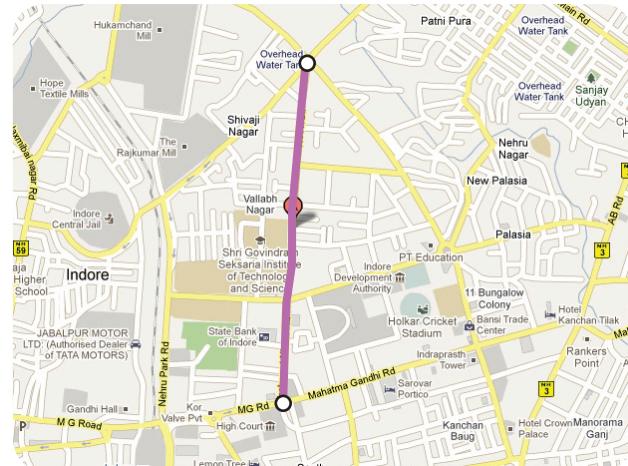
Special features - Lot of activity around Malwa Mill and the large number of shopping complexes. There is also a famous Engineering college - SGSITS on this stretch at Lantern Square.

HIGHLIGHTS ★★★★☆

Footpath: Footpath present for majority of the corridor, but ends just short of the City Centre Jn and Malwa Mill Jn. It is in good condition, except for sections on southbound side near City Centre Mall.

Footpath width is of minimum width so it allows comfortable pedestrian movement but cannot accommodate utility boxes, trees, etc. which when present create obstacles. Footpath is also covered in litter in some places.

Crossing: Crossing opportunities are well spaced, except for a stretch between MG Rd and Racecourse Rd, where a mid-section crossing could be placed. Crossing is possible due to lower traffic volumes, however vehicles do not yield for pedestrians.



NMV - The non-motorized vehicle lane is present for most of the corridor. This lane provides a good buffer between vehicles and pedestrians and shortens crossing distances. However, the lane is as wide as a MV lane and is often encroached by parked vehicles or 2-wheelers. It is not well marked that this lane is intended for cyclists.

Amenities/Parking: The bus stops, sign masts, and parking are the biggest obstructions. Narrowing the NMV lane could yield space for curb parking, solving the latter problem. A 1.5m to 2m NMV lane can still comfortably accommodate cyclists.

AVAILABILITY OF FOOTPATH

★★★★★ Path Provision

- The footpath is present for majority of the corridor except for short (20m) sections such as in advance of City Centre Jn and Malwa Mill Jn.



For most sections, the surface condition is quite good.

This stretch is well-shaded and comfortably accommodates two pedestrians passing.

★★★★★ Adequate Width

- Footpath can accommodate two people passing comfortably, but not utility boxes, signs, etc. Footpath narrows to 1m near Malwa Mill.



Parked vehicles force pedestrians off the footpath for a lengthy section. The break inconveniences pedestrians by forcing them to step down and climb up again. Such breaks in the footpath may also be prohibitive for elderly or disabled users.

The width here is insufficient for both a bus stop and pedestrian movement.

CROSSING

★★★★★ Crossing Spacing

- Generally, crossing chances are available every 250m except for a long stretch between MG Rd (City Center) and Racecourse Rd (500m)



At the MG Rd junction, the road widens creating longer, more difficult crossings for pedestrians. The footpath is completely obstructed here forcing pedestrians to walk in the street where vehicles are making turns at high speeds.

★★★★★ Waiting Time and Ease

- It is possible to find gaps to cross the road as the traffic volumes are not high but there are no signals or speed breakers available to aid crossing.

★★★★★ Crossing Distance

- Street widens near MG Rd creating longer crossing distance for pedestrians.

BUILDING INTERFACE

★★★★★ *Building Interface*

- There are some good stretches near Malwa Mill.
- South of Racecourse Rd, many businesses have a parking lot between footpath and building; congested parking situation is an impediment to pedestrians accessing the building.



These storefronts are very good from a pedestrian design standpoint. Unfortunately, the footpath disappears shortly afterwards.

At some places building encroachment and spillout of business activity render the footpath unusable.

AMENITIES

★★★★★ *Lighting*

★★★★★ *Coverage*

- Good shade through much of corridor.



Dumpsters obstruct the footpath and poor maintenance has resulted in trash being scattered about.

This tree is overgrown for anyone taller than 1m to pass comfortably.



The width here cannot really accommodate both the trees and pedestrians walking side-by-side or passing each other. This width should be widened to an absolute minimum of 2.5m.

OBSTACLES

★★★★★ *Obstacles*

- Bus stops, signs, billboards, dumpsters and some building encroachments block the footpath completely.



Pedestrians must zig-zag around a number of obstacles in this stretch. The added difficulty results in many choosing to walk in the carriageway. The utility poles are well located.



This sign is poorly located and designed, as it nearly completely blocks the footpath.



The footpath is completely obstructed here and in a very dilapidated state.



Overgrown landscaping is a common obstruction in this corridor.

PARKING

★★★★★ *Parking obstructions*

- Significant parking obstructions south of Racecourse Rd. Shopping center parking lots spill out onto footpath.
- In addition, there are problems with 2W and 4W parking along with problems with vehicles driving up semi-mountable curbs or using driveways to drive up on footpath (bypassing barrier curbs).



The NMV lane is much wider than needed for cyclists to ride comfortably and is misused for parking. This lane can be narrowed to provide organized on-street parking.



Parked vehicles are the most egregious obstruction in this corridor. Here, the shopping center's lot has taken over the footpath. Ways to move parked vehicles to the curb, where excess carriageway space could be devoted to parking, should be explored. This space holds great potential for benches or other pedestrian amenities.



RNT ROAD

Connects Regal Square (at MG Rd.) to Madhumilan Square.
Length - 0.8km | Lanes- 6

Locality - Commercialised area surrounded by big malls and well known hotels of the Indore city.

Traffic - Heavy vehicular traffic throughout the day.

Special features - Big commercial malls throughout the stretch. The railway station and bus stand are also in the vicinity.

HIGHLIGHTS ★★★★☆

Footpath: Footpath missing from most of southbound side. Footpath on the northbound side is inadequate (1m to 3m). Significant mixing of pedestrians and vehicles on the southbound side due to lack of footpath. On the northbound side footpath is often blocked by signs, utility poles, sign masts, or poorly located trees.

Crossing: Crossing opportunities missing from northern half of corridor. Heavy incidence of jaywalking in spite of a 1m high barrier median indicates the need for another crossing near Central Mall due to major attraction of this site and lack of crossing in the vicinity.

Very heavy traffic makes it difficult to find gaps in crossing. Crossing opportunities should be signalized.



Parking: Parking obstructions are the most pressing problem in case of both 2-wheelers and 4-wheelers. In some cases, legitimate lots have exceeded capacity and extended onto footpath; in other cases, individual vehicles can be seen parked in illegitimate spots.

Building interface / Amenities: No problems with business spillout. Vendors generally not an obstruction as they occupy dead space.

AVAILABILITY OF FOOTPATH

★★★★★ Path Provision

- Footpath nonexistent for most of south-bound side, but present for most of northbound side.



Effective width of sidewalk not even enough for a single person to walk comfortably.

In several places, the footpath is absent or narrows to a negligible width.

★★★★★ Adequate Width

- When present, the footpath is not even wide enough for two people walking in opposite direction to pass comfortably. In some stretches a single person can barely walk comfortably.



Footpath present, but surface condition needs improvement.

In several places, the footpath is absent or narrows to a negligible width.

CROSSING

★★★★★ Crossing Spacing

- Need another crossing opportunity in vicinity of Central Mall; many pedestrians scale the 1m high median barrier to cross here.
- Southern half of corridor has adequate spacing for crossings while northern doesn't.



There is no crossing opportunity near the Central Mall, despite the fact that many people want to cross here.



Absence of refuge median. It does not have any space for pedestrians to walk and is also not properly aligned with the zebra crossing.

★★★★★ Waiting Time and Ease

- Difficult to find gaps in high volume traffic at mid-corridor crossings. Wait often 90 seconds or greater.
- Crosswalks are painted but no other traffic calming features to make cars yield.



The wide curb radius near police station creates a long distance for pedestrians to cross.



Barriers on pedestrian crossing increase the inconvenience.

★★★★★ Crossing Distance

- Wide road (3 MV lanes in each direction) offers scarce mid-crossing protection.

BUILDING INTERFACE

★★★★☆ Building Interface

- Several built obstacles which render pathway unusable including bus shelter, utility boxes and support poles for overheard signs are located in center of path.



Large building setbacks and glut of parking make it difficult for pedestrians to access buildings and make streetscape less interesting.

AMENITIES

★★★★☆ Lighting

★★★★☆ Coverage

- Southern half of southbound direction and northern half of northbound direction are sections that have adequate shade.



Footpath present on northbound side. Here in some stretches tree strips provide a good buffer from vehicle traffic.

★★★★☆ Overall maintenance and presence of Street Furniture

- No provision of benches, restrooms, etc.

OBSTACLES

★★★★★ *Obstacles*

- Bus shelter, utility boxes, support poles for overhead signs and trees are often planted in middle of sidewalk, diminishing effective footpath width.



The sign structure blocks nearly the entire footpath. The woman walking in the street may have just given up on trying to negotiate a path through all the obstacles.



Sign board obstructing the footpath



Bus Stop completely encroaching the footpath



Sign board obstructing the footpath

PARKING

★★★★★ *Parking obstructions*

- There are many 4-wheelers parked on the footpath on the northbound side near Nehru Statue Junction.
- Some of 2-wheeler and 4-wheeler lots spill out on southbound side to pedestrian space, forcing pedestrians into MV lanes.



Parking lots spill into pedestrian space



The parking on the footpath is mainly due to the curbs being mountable.



NAVLAKHA MAIN RD

Connects Navlakha Square (at AB rd.) to Agrasen Square.

Length - 0.45km | Lanes- 6

Locality - It is surrounded by the residential colonies such as Janki Nagar and Agarwal Nagar.

Traffic - As it connects to AB road there is heavy vehicular traffic on this stretch throughout the day.

Road condition - Good.

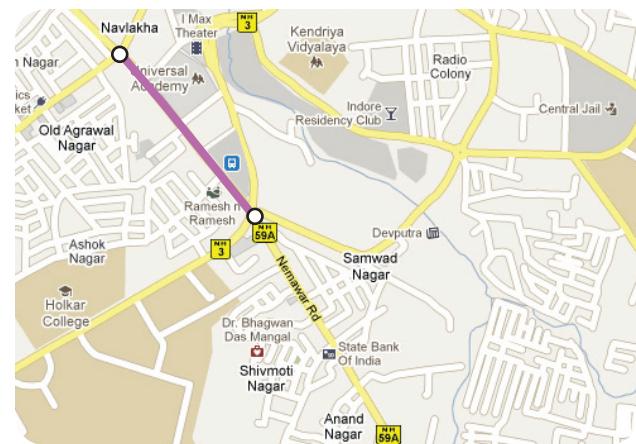
Special features - There is Navlakha Bus stand on the AB road. There is also considerable amount of pedestrian traffic.

HIGHLIGHTS ★★★★☆

Footpath: The footpath is often insufficiently wide for comfortable pedestrian movement and is missing for a 50m stretch near both Agrasen Jn and AB Rd.

Vendor Interface: There are problems of excess encroachment of pedestrian space by vendors on eastbound side from Agrasen Jn to Navlakha Market. For part of this section where there is no footpath at all vendors occupy outermost lane, forcing pedestrians into middle lane. Across from Navlakha Market, vendors are not on the footpath, yet they block pedestrians from getting onto the footpath when crossing.

Crossing: Although crossing opportunities are well-spaced (every 100 m to 200 m), junctions could be better designed using traffic calming measures to slow vehicles for safer



crossing and make pedestrians wishing to cross more visible to motorists. Crossings at Agrasen Jn is difficult as the road widens further and there is no footpath.

Garbage: Covered with dirt and litter in some sections.

Carriageway: Carriageway is 3 lanes in each direction, however in most places outer lane is used for parking. The curb parking helps to moderate vehicle speeds and shorten crossing distances.

Parking: Parking obstructions and business spillout encroaching pedestrian space are the biggest problems in the corridor. Replacing the outermost MV lane with parking and wide footpaths could solve both issues.

AVAILABILITY OF FOOTPATH

★★★★★ Path Provision

- Footpath is present along both sides of corridor, but ends abruptly 50m before Agrasen Jn and 50m before AB Rd.



Footpath ends near Agrasen Junction. Road flairs creating a longer distance for pedestrians wishing to cross.



Even if unobstructed, this footpath would not be wide enough for two pedestrians to pass each other. The failure to properly define space has led to two MV lanes being obstructed. A wider pavement here can accommodate bilateral pedestrian flow as well as hawkers.

★★★★★ Path Surface Condition



The footpath disappears just before the AB Rd intersection.



Litter and mud make the footpath unattractive in many stretches.

AMENITIES

★★★★★ Lighting

- Center mast lighting present for entire corridor but not at pedestrian scale.



Awnings are present but the footpath is completely blocked and so provides no shade to pedestrians who are forced off the footpath.



Center mast lighting present for the entire corridor.

★★★★★ Overall maintenance and presence of Street Furniture

- Streetscape looks cluttered and littered with garbage.



CROSSING



★★★★★ Crossing Spacing

- Crossing opportunities are provided every 300m to 500m however it is possible to cross every 100m to 200m through gaps in traffic.



Zebra crossing is painted but median provides a barrier rather than mid-crossing refuge.



The curb radius on this side street is tight, forcing vehicles to round the curve at a slower speed and making pedestrians waiting to cross more visible.

★★★★★ Waiting Time and Ease

- Not difficult to find gaps in traffic, but it may be difficult for some users. Traffic volume is moderate and junctions have speed breakers in advance of zebra crossings. Speed breakers do not affect all vehicles.



Speed breakers in advance of zebra crossings are effective for some vehicles. 2-wheelers often swerve around them and lorries do not stop. Speed breakers should be placed further in advance of zebra crossing so that vehicles have time to come to a complete stop for pedestrians if necessary.



Footpath ends near Agrasen Junction. Road widens creating a longer distance for pedestrians wishing to cross.

★★★★★ Crossing Distance

- Street is quite wide, and the median provides little refuge for crossing.
- However, the outermost motor vehicle lane is de-facto used for parking and deliveries so distance to be crossed is somewhat shorter.

BUILDING INTERFACE

★★★★★ Building Interface

- Very active streetscape, however glut of parking in front of many buildings makes it difficult for pedestrians to easily access businesses.



Auto repair shop blocks this footpath.



Business spillout is the most prominent problem in this corridor, leaving extended stretches of the footpath unusable by pedestrians.

★★★★★ Business Spillout

- Major problem; business spillout makes entire 100m to 200m long sections of footpath unusable. Spillout is from activities like car and bicycle repair, welding, and display of items by salesmen.



These bicycles and motorcycles could easily be moved to curb parking, freeing up the footpath and making businesses more easily accessible to pedestrians.



There are many pedestrian friendly shop fronts, as seen here. Unfortunately, glut of 2-wheeler parking as seen in the background make the sidewalk unusable and block the storefronts.

OBSTACLES

★★★★★ *Obstacles*

- Utility poles are not well located and there are some instances of bus stops and overhead sign masts blocking the footpath. However, this is not the most pressing problem.



Bus stop blocks sidewalk.



PARKING

★★★★★ *Parking obstructions*

- Significant problem, rampant 2 wheeler parking in the eastbound direction past the Indira Complex.



The space allocated to motor vehicles is extremely generous. For a road with moderate traffic volumes and high share of 2-wheelers, 3 wide lanes is excessive. As this picture shows, there is ample space to solve problems of parking obstructions of the footpath with curb parking.



This lot on the westbound side of the street is used for bus parking. The bus parking often encroaches on the footpath. Moreover, the parking lot could pose a risky security situation at night.



MANIK BAGH RD.

Connects Manik Bagh Overbridge to Moti Tabela.

Length - 0.4km | Lanes- 6

Locality - Surrounded by residential colonies like Manik Bagh, Palsikar Colony and Moti Tabela etc. Palsikar Colony and Manik Bagh are upper middle income localities whereas Moti Tabela is a old low income locality.

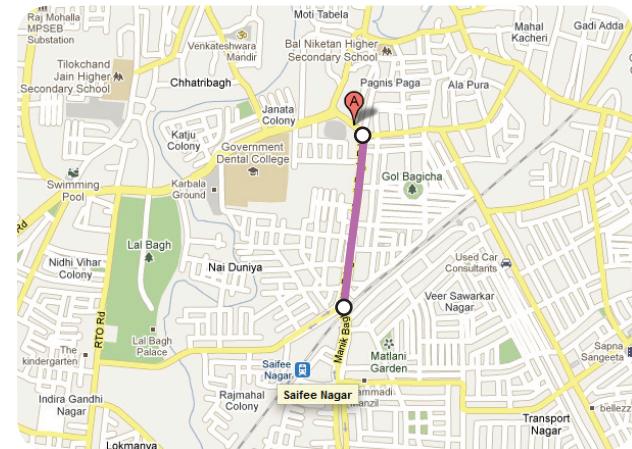
Traffic - High vehicular traffic as the collectorate office is nearby.

HIGHLIGHTS ★★★★☆

Footpath: A well shaded footpath of width 5m or more is present for most of corridor. The footpath comfortably accommodates pedestrians, even with utility boxes, bus stops, and trees. However, it lacks upkeep; many sections are covered by eroded dirt or garbage. The corridor ends with a railway over-bridge that has no footpath.

Crossing: The crossing at Palsikar Junction is extremely unsafe due to the road widening even more than 3 lanes per direction at the junction. In contrast, the mid-corridor crossing has a well-designed refuge median.

Carriageway: The vehicle carriageway is extremely wide (3 lanes in each direction), which encourages high speed as well



as wrong direction driving, dangerous for pedestrians. The traffic volumes appear relatively low.

Parking: Parking obstructions are the most pressing problem in this corridor. Vehicles easily drive onto mountable curbs and block the footpath even though there is ample space for curb parking. Providing bollards, benches, garbage cans, or landscaping on the footpath will keep vehicles off the curb. Providing designated on-street parking could discourage excessive speeding by reduction of effective road width and pavement parking.

AVAILABILITY OF FOOTPATH

Path Provision

- Footpath is present for most of the corridor.
- The corridor ends with Railway over-bridge that lacks pedestrian crossing.



Most of the corridor is well shaded and sufficiently wide to accommodate pedestrian movement and trees, utility boxes, utility poles, etc.

The width of the footpath here can accommodate both hawkers and pedestrian movement.

Path Surface Condition

- In many sections, path is completely covered by erosion or highly warped and some are missing tiles.



This wide footpath could be an inviting space with trees and benches, instead it is dirty and encroached by cars.



The footpath along the bridge is of insufficient width.



In several patches in this corridor, the footpath is severely deteriorated.



Warping of the pavement creates a tripping hazard.

CROSSING

★★★★★ *Crossing Spacing*

- Crossing opportunities every 200 m.



★★★★★ *Waiting Time and Ease*

- The road is very wide with high speed traffic but with well-constructed refuge medians.



The crossing distance at Palsikar Junction is quite long. The median provides little refuge and the crosswalk is also encroached upon by queued vehicles.

This is a good example of a well-designed refuge median. It provides ample space for pedestrians to wait and look for a gap before crossing the second half of the street. Vehicles can also easily see the driver waiting to cross.

★★★★★ *Crossing Distance*

- Very wide carriage way – 3 lanes in each direction plus a shoulder in some places. Road gets even wider near Palsikar Junction.

BUILDING INTERFACE

★★★★★ *Building Interface*

- Most adjacent land uses are fenced off or have closed off store fronts.



Shop spillout and bicycle parking block the footpath here.

★★★★★ *Business Spillout*

- Minor problem, a few instances of building encroachment or footpath being used for display.

AMENITIES

★★★★★ *Lighting*

- Center mast lighting lights the entire corridor but is not at pedestrian scale.



At some places , the trees are not pruned so the head clearance is insufficient.

★★★★★ *Coverage*

- Amply shaded footpath.

★★★★★ *Overall maintenance and presence of Street Furniture*

- No amenities, despite ample space to provide benches, street furniture, etc.



Much of the corridor is well shaded. The footpath width is generally wide enough to accommodate pedestrian movement, trees, utility boxes, utility poles, etc.

OBSTACLES

★★★★★ *Obstacles*

- Minor problems.
- Obstructions include bus stops, dumpsters, and signs. Footpath looks neglected and dirty in many places.



The footpath is wide enough to accommodate this bus stop, but the bus stop has been poorly placed. If placed flush against the wall, pedestrians will be able to walk comfortably in front of it.

PARKING

★★★★★ *Parking obstructions*

- Significant problem. There is rampant parking on the footpaths due to mountable curbs. The solution is to place bollards on the curb edge and provide designated parking spaces.



Vehicles parked on the footpath are the most significant obstruction in this corridor even though there is ample space to provide on-street vehicle parking.



Mountable curbs invite parking obstruction



RACECOURSE RD.

Connects Industry House (AB Rd.) to Nehru Park Road in front of main entrance of SGSITS.

Length - 1.5km | Lanes- 6

Locality - Most of the houses belong to rich and affluent people.

Traffic - Heavy vehicular traffic.

Pavement condition - Newly constructed pavement.

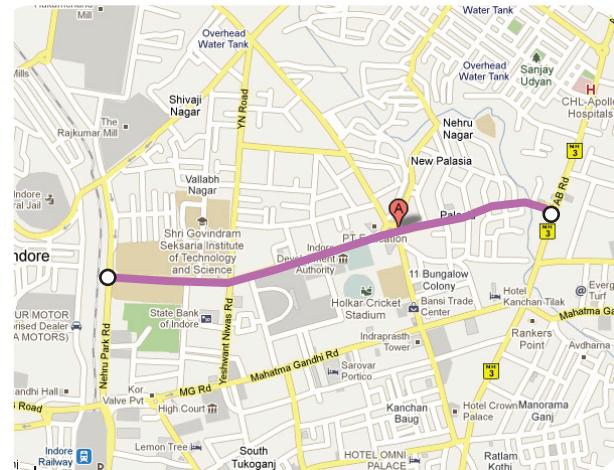
Special features - Big commercial malls throughout the stretch.

HIGHLIGHTS ★★★★☆

Footpath: Footpath missing from eastbound direction west of YN Rd and from both sides east of Jajirwala Chauraha. Lack of footpath in places is not due to lack of space as there is sufficient space outside the 6 lane carriageway.

When present, footpath is in good condition, well shaded and 4m to 5m wide, sufficient to comfortably accommodate pedestrian movement, bus stops, trees, etc.

Crossing: Crossing opportunities are well provided, but the distance to cross is quite long (6 lanes in each direction). The median does not provide good intermediate protection from vehicles. Traffic volumes are lower so street is still crossable, however, more could be done to ease crossing for pedestrians like introducing bulbouts and speed breakers in advance of crossings to improve safety.



Parking: Parking obstructions are biggest problem in this corridor. Situation could be improved through combination of curb parking and bollards or street furniture to keep vehicles off the footpath.

Building interface / Amenities: There are only minor problems with built obstructions, business spillout, or vendor interference, mainly because the corridor is wide enough to accommodate the above and still provide adequate space for pedestrians to move freely. In several places, trees are planted in the center of the footpath in a way that are an obstruction.

AVAILABILITY OF FOOTPATH

★★★★★ Path Provision

- Path completely absent in eastbound direction west of YN road intersection and from both sides east of Janjirwala Chauraha inspite of there being adequate space for a footpath in the sections where it is not present.



As seen here, the footpath width is generous.

No footpath on eastbound side to west of YN Rd

★★★★★ Adequate Width

- When present, footpath width is substantial. The pavement width is 4 - 5m between YN road and Janjirwala Chauraha the. The width comfortably accommodates street fixtures and pedestrian thoroughfare.



A few patches of deteriorated bricks are tripping hazards and may deter footpath use.

No footpath west of Janjirwala Chouraha even though there is no shortage of space.

★★★★★ Path Surface Condition

- Overall pathway in good shape though there a few small patches where bricks are missing. Also a few dislodged drainage covers that pose a hazard.

CROSSING

★★★★★ Crossing Spacing

- Ample opportunities to cross between YN Rd and Janjirwala Chauraha. Maximum spacing for crossings is 400m, and the median allows mid-block crossings.



Street considerably widens while footpath ends at Janjirwala Chauraha leading to extremely long distances to be crossed.

Wide street to be crossed, crosswalk completely encroached by vehicles.

★★★★★ Waiting Time and Ease

- Traffic volumes are not especially high, but crossing opportunities are not marked with zebra crossings and no design features to make motorists look for or stop for pedestrians.



Island channels vehicles to a high speed turn, but provides no assistance to pedestrians crossing.

★★★★★ Crossing Distance

- Extremely long distance to be crossed at Janjirwala Chauraha and YN Rd. Streets flare at these intersections; need refuge islands and medians.

BUILDING INTERFACE

★★★★★ *Building Interface*

- Most buildings have large setbacks or blank walls adjacent to the footpath.

Business Spillout

- No businesses, hence no spillout.



AMENITIES

★★★★★ *Lighting*

- All footpaths have provisions for lighting facilities located on a side.



★★★★★ *Overall maintenance and presence of Street Furniture*

- The footpath is fairly well maintained but there are no amenities.



Much of the footpath is well shaded. In this case the trees are well located, providing complete coverage without blocking movement.



Another case of poorly placed trees obstructing the footpath.



OBSTACLES

★★★★★ *Obstacles*

- Relatively minimal. Footpath is wide and bus stops, overhead sign masts, etc. are located to the side of the footpath providing unrestricted movement.



Here, side placement of utility boxes and overhead sign masts makes them non-obstructive.



While in this case, the sign completely blocks the footpath. The second vertical support pole for the signage and its central placement are completely unnecessary.

PARKING

★★★★★ *Parking obstructions*

- Problems with 4-wheelers encroaching on sidewalk, especially on eastbound side near Janjirwala Chauraha. There are instances of individual vehicles parking on the sidewalk and parking lots spilling out onto the footpath.



Illegally parked vehicles block the footpath much more than mobile vendors.



Parking lot spillout completely blocks footpath.



NEW DIWAS ROAD/MALWA MILL RD.

Start from Bhamori (at AB rd.) and ends at Patnipura Circle.

Length - 2.0km | Lanes- 6

Locality - Largely a densely populated low income locality.

Traffic - Heavy vehicular and pedestrian traffic.

Building interface - There are small shops throughout the stretch along with 2-3 theatres near Patnipura.

Road / pavement condition - This is an old street but the pavement has been newly constructed.

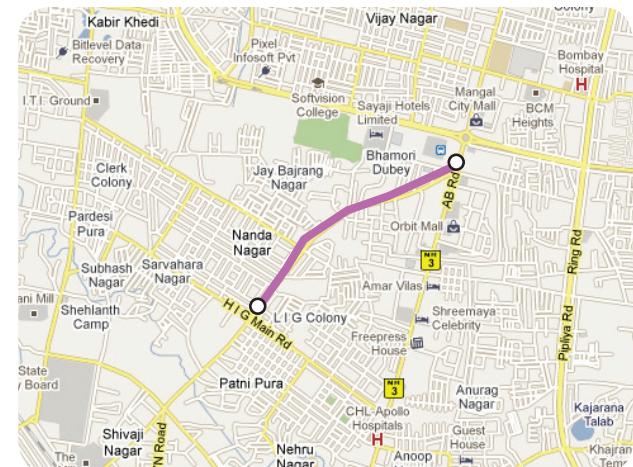
Special features - There are a lot of bus body building workshops in Bhamori and many autoparts shops surrounds this place. Close to Patnipura circle there are also many hawkers selling food items.

HIGHLIGHTS ★★★★☆

Footpath: Footpath present south of Khan River overbridge, but missing for remaining stretches. Long stretches of footpath are completely obstructed by vendors and business spillout that use the footpath for industrial activity or display of products.

Traffic volumes are high but actual traffic flow only occupies 1 to 2 lanes. Converting the outermost MV lane to widen the footpath could solve the problem of pedestrians drifting unpredictably into MV lanes, causing bottlenecks and potential accidents.

Carriageway: Vehicle carriageway is very wide (3 lanes in each direction) however in most places outer lane is obstruct-



ed by vendors or pedestrians who are forced off footpath into the middle MV lane.

Crossing: Crossing opportunities are well spaced. Crossing is difficult because traffic volumes are high and pedestrians wishing to cross are often difficult to detect as the sightlines are obstructed by vendors. Motorists do not yield at junctions.

Parking: Parking obstructions and built obstacles are relatively minor problems in this corridor.

AVAILABILITY OF FOOTPATH

★★★★★ Path Provision

- Footpath disappears for long stretches north of Khan River Over Bridge.



When unobstructed, the footpath width is sufficient for comfortable pedestrian movement in many stretches.

The footpath is missing from this stretch of the corridor near Rasoma Lab. In addition, the allotted pedestrian space is also too narrow

★★★★★ Adequate Width

- When unobstructed, the footpath is wide enough for pedestrians to walk comfortably.
- However the vast majority of the footpath is taken over by business spillout, vendors, and 2-wheeler parking. In most places the footpath is much narrower than the range of activities using it.



This footpath is built to the width necessary to accommodate business spillouts while providing for comfortable pedestrian movement.

★★★★★ Path Surface Condition

- Generally in good condition when present.

CROSSING

★★★★★ Crossing Spacing

- Junctions present roughly every 300m. Some breaks in barrier median have been added for mid-block crossings.



A few mid-block crossing opportunities have been added, decreasing the distance pedestrians must walk in turn increasing mobility and convenience.



Extra wide MV road causes difficulty while crossing.

★★★★★ Waiting Time and Ease

- High traffic volume road without any traffic calming at crossing points. Elderly users in particular struggle while crossing.

★★★★★ Crossing Distance

- Very wide carriageway and refuge medians are often useless.

BUILDING INTERFACE

★★★★★ *Building Interface*

- Sections such as Anoop Theatre and near Patni Puri Jn on southbound side have engaging building interface while the Northbound side south of the river is very cluttered. The north of river is populated with shops with industrial uses.



These storefronts are very pedestrian friendly, however the shop spillout force pedestrians off the footpath.

Business spillout often blocks the footpath. Keeping the footpath obstruction free could provide a buffer between pedestrians and vehicles.



Industrial spillout obstructs and soils the path.

More business spillout blocking the footpath.



Much of the corridor has very pedestrian friendly facades with shopfronts that engage pedestrians and provide ample opportunities for browsing and shade from the sun.



If awnings such as these are redesigned in a non-obstructive way, they can provide shelter for the business and pedestrians.

AMENITIES

★★★★★ *Lighting*

- Lighting is absent from some stretches north of Khan river over-bridge. Lamps that are placed at the curb are directed towards the carriageway leaving the footpath inadequately illuminated.



No provision for lighting/tree coverage here.

★★★★★ *Coverage*

- The corridor lacks proper shading because of the limited number of trees and even the awnings from the many shops are not usable as they block pedestrian movement.

★★★★★ *Overall maintenance and presence of Street Furniture*

OBSTACLES

★★★★★ *Obstacles*



Presently, the fruit and vegetable vendors on this street do not only interfere with the footpath, the patrons and their vehicles even spill into the MV lanes. There is also no clear demarcation of vending space.



Fruit and vegetable vendors interfere with movement on the northbound side near Patni Puri Jn. This appears to be one of city's major vegetable markets and is heavily patronized.

PARKING

★★★★★ *Parking obstructions*

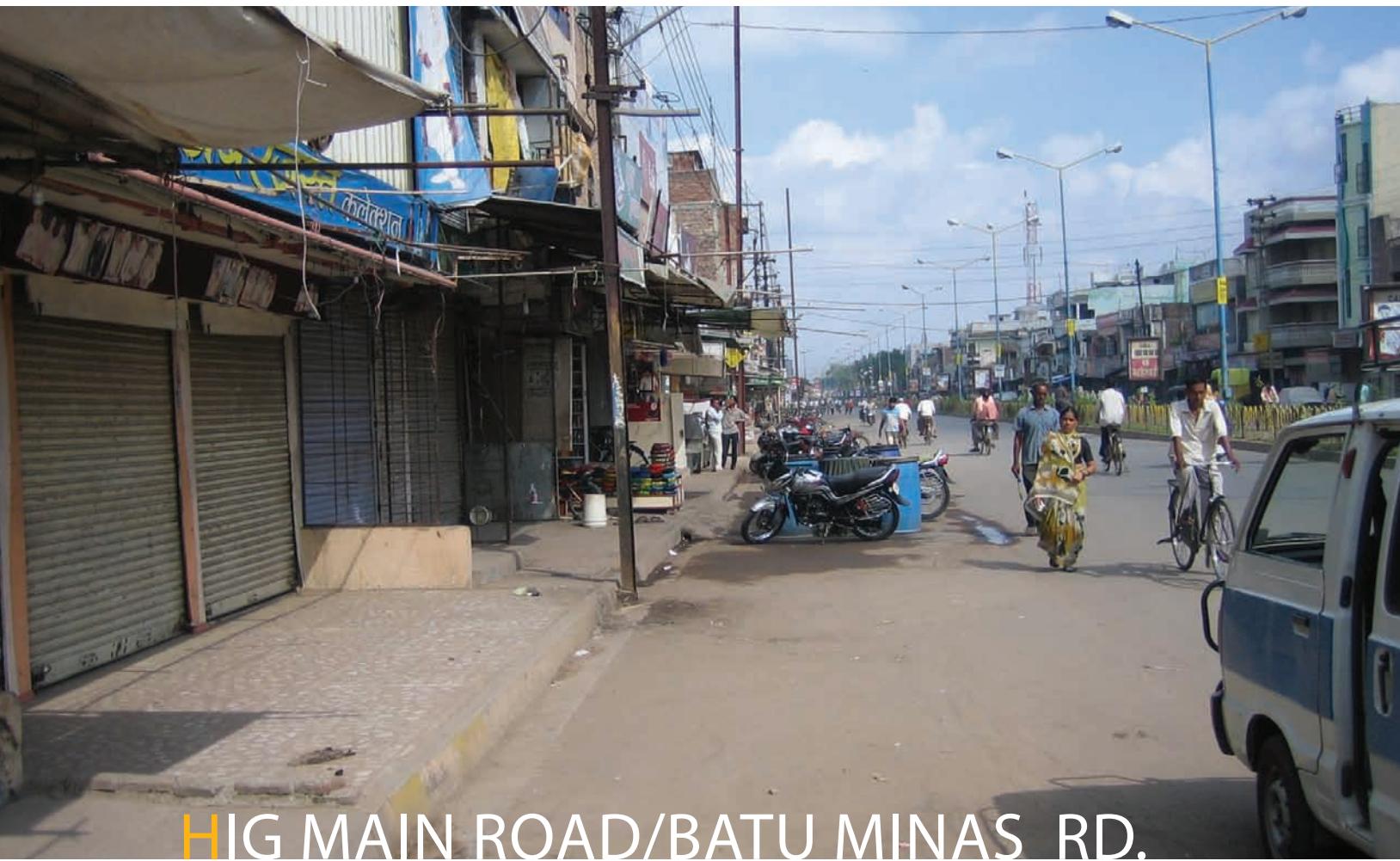
- This is a minor issue. Though most vehicles are parked on curb, some 2-wheelers can be seen parked on the footpaths.



The mountable curb here encourages parking on the footpath.



The buses parking along the footpath and the wall here create a blind stretch at night.



HIG MAIN ROAD/BATU MINAS RD.

Connects LIG Circle (at AB rd.) to Pardeshipura Circle

Length - 2.1km | Lanes- 6

Locality - Mainly low income old colonies located around this road.

Traffic - High vehicular traffic on this stretch.

Building interface - Throughout the street there are small shops.

Road / pavement condition - It is an old road but the footpath has been newly constructed.

HIGHLIGHTS ★★★★☆

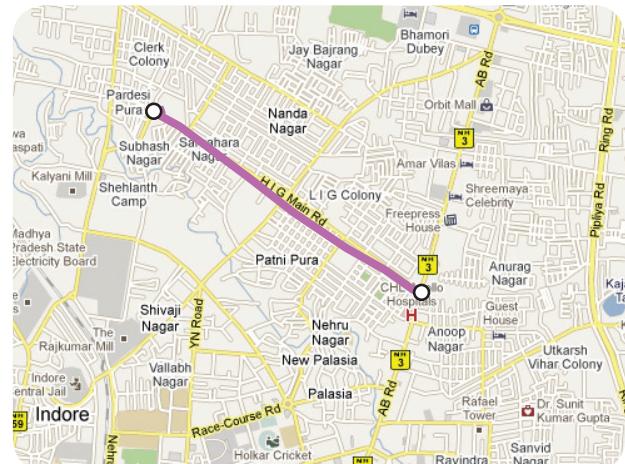
Footpath: The footpath generally 4m wide is in good condition and present for nearly the entire length of the corridor.

Carriageway: Carriageway is very wide (3 lanes per direction) for observed traffic volumes and the outermost lane is a de-facto parking lane in many stretches.

Crossing: Crossing opportunities are well spaced, except for one long 500 m stretch east of Patni Puri Jn. where lack of chances increase possibility of jay-walking.

All junctions have speed breaker. However many motorists speed through intersections in spite of speed breakers, increasing crossing difficulty and safety risk for pedestrians.

Parking: Parking obstructions not a major problem due to mountable curbs. Some issues of drivers abusing driveways



to park on the footpath. These obstructions could be corrected by constructing bollards to keep cars off the footpath and formalizing the curb parking to ensure there is sufficient parking availability.

Building interface: Biggest problem areas include built obstructions (building encroachment, bus stops, utility towers) and business spillout. In some stretches, particularly west of Patni Puri Jn., business spillout makes footpath unusable for 100m or more. In these stretches wider footpath may be needed.

AVAILABILITY OF FOOTPATH

★★★★★ *Path Provision*

- Present for nearly the entire length except for a few spots where it ends abruptly for 20m stretches and also abruptly just ahead of junctions.



This footpath is in good condition and is comfortably wide.



These extreme cross slopes are uncomfortable to walk on. Since, in some cases lower slopes are misused for driving up the curb and parking on the pavement, bollards must be installed on pavements.

These curb radii create a shorter crossing for pedestrians and tempers vehicle speeds.



This footpath is wide enough to accommodate both this snack vendor and pedestrian movement, though patrons' vehicles should be parked on the curb.

The footpath ends abruptly, just before Pardesi Puri Jn.



CROSSING

★★★★★ *Crossing Spacing*

- Good provision, except for one long stretch east of Patni Puri Junction where there are no chances to cross for 500m.



Speed breakers at junctions provide some protection for crossing pedestrians; however, they are too close to the crossing. The speed breaker should force the vehicle to slow down before the crossing so they can see pedestrians. So that there is sufficient space for the vehicle to stop in time. Road marking such as zebra crossing could improve visibility of pedestrians while the median could be extended to provide refuge for crossing pedestrians.

The crossing distance at Pardesipura Jn. is too long for users such as children, elderly or handicapped people causing them to get caught in traffic mid-crossing.

★★★★★ *Crossing Distance*

- Carriageway is quite wide, however outermost MV lane is often used for delivery trucks and parking, so effective distance to cross is shorter. The center median provides little refuge. Wide street at Pardesi Puri Jn.

BUILDING INTERFACE

□ ★★★★ Building Interface

- Many sections with open store fronts offer engaging environment and safety to pedestrians.



This stretch provides a vibrant and engaging interface.



No footpath was built along this stretch, east of Pardesi Puri Jn.



This motorcycle dealership obstructs the footpath with the display of products.



Business spillout such as this considerably narrows the footpath forcing people off the footpath.



AMENITIES

★★★★★ Lighting

- Center mast lighting is mostly blocked by the tree cover so lighting at pedestrian level is required.



★★★★★ Coverage

- The stretch of the corridor especially east of Patni Pura Jn. is well shaded.

★★★★★ Overall maintenance and presence of Street Furniture

- No amenities.
- Notable attention to design in choice of street lighting and medians.

This tree provides good shade. Although the tree is in the middle of the footpath, the width of the footpath allows movement largely unhindered.

This tree blocks much of the footpath and forces pedestrians to duck.

OBSTACLES

★★★★★ Obstacles

- Poorly placed signs, bus stops, and utility towers obstruct the footpath in many places.



This speed limit sign blocks nearly the entire footpath. It could easily be redesigned with a single support to be unobtrusive.



Both the bus stop and the planter obstruct the footpath here.

PARKING

★★★★★ Parking obstructions

- Parking situation is well-handled in many places; many vehicles park on curb.
- Some instances of vehicles parking on footpaths; barrier curbs generally prevent parking obstruction, but in some places ramps for vehicle access allow vehicles to park on footpath.

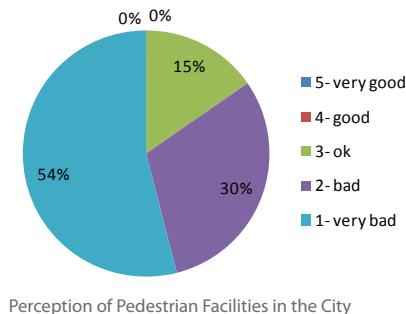


Vehicles exploit low curbs or ramps for driveways to drive onto and park on footpath. Bollards can prevent these parking obstructions.



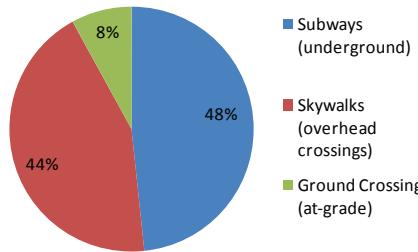
The generous carriageway on this street can easily accommodate curb parking, freeing the footpath of parking obstructions and providing a buffer between pedestrians and vehicles.

SUMMARY



AVAILABILITY OF FOOTPATHS

In comparison to other Indian cities, Indore has a better pedestrian infrastructure which is in fairly good condition. However, certain sections on RNT Road, Racecourse Road and New Diwas Road are missing footpaths completely and on most sections on all roads where there are footpaths, the widths are insufficient to accommodate street activity. Surface condition, in general, is good because of recent construction except on Manik Bagh Road.



AVAILABILITY OF CROSSINGS AND CROSSING SAFETY

Indore does not have separate pedestrian signals at intersections and it is general practice to cross the road by observation of traffic flows and personal judgement of risk. Since traffic speeds are relatively slower, presently crossing the roads is largely a cause of concern only on RNT Road, Manik Bagh, Racecourse Road and New Diwas Road. As per a survey, most respondents were willing to walk between 50m and 300m to access crossings. This, in combination with the potential growth of motorization reflects the need to pay attention to the provision of safe and adequate crossing opportunities with appropriate refuge medians at regular intervals of 200m.

OBSTRUCTIONS

Most footpaths in Indore are usable with obstructions of various kinds ranging from signboards to bus stops to illegal parking to garbage dumpsters to spill-out from business activity to takeovers by street vendors. Each of these obstructions can be avoided by a range of simple solutions from practically designed street furniture to progressive policies of social inclusion. The design and management of footpath spaces is crucial in the enhancement of the pedestrian experience in the city.

	DESIGN ONLY			DESIGN ONLY		DESIGN + ENFORCEMENT		
Roads	Path Provision	Surface Condition	Adequate Width	Crossing opportunities	Crossing waiting time and Ease	Crossing Distance	Built Obstructions	Parking Obstructions
Annapoorna Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
YN Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
RNT Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Navlakha Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Manik Bagh Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Racecourse Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
New Diwas Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Batu Minas Road	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

AMENITIES

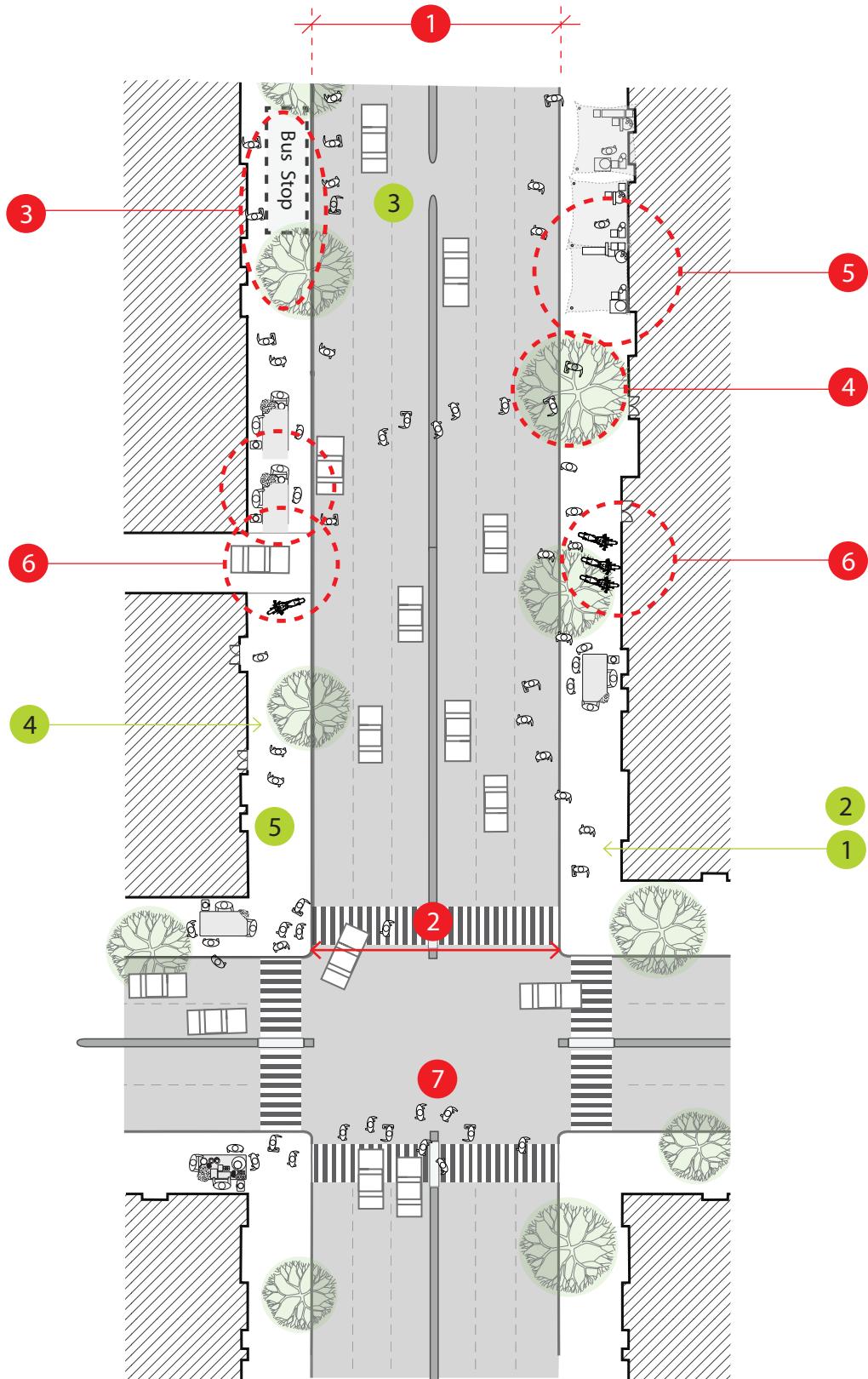
Amenities are features like benches, information signage, garbage bins, public artworks which make the streets easy and attractive for pedestrians. Adequate lighting and shade (from the sun) are also important elements of good pedestrian infrastructure. If designed or inserted carelessly, they could actually turn counter-productive to the pedestrian experience (see the section on obstacles). On the streets surveyed, lighting was inadequate on New Diwas Road, while Annapoorna Road, Navlakha Main Road and New Diwas Road were not very well shaded.

SECURITY FROM CRIME

Indore is a relatively safe place with fewer incidents of mishaps or crime. Also, most of the streets surveyed had businesses on the ground level of buildings and street vending activity which provide 'eyes on the street' and increase security for pedestrians. However, vehicle users have little regard for pedestrians and rarely yield for crossing pedestrians, posing great danger to them. Pedestrians, on the other hand, exhibited minimal jaywalking when there were sufficient opportunities to cross the street.

DESIGN ONLY			DESIGN + ENFORCEMENT				
Lighting	Coverage	Street Furniture/ garbage bins etc.	Security	Speeding	Yielding	Pedestrian Crossing Behavior	Roads
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	Annapoorna Road
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	YN Road
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	RNT Road
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	Navlakha Road
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	Manik Bagh Road
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	Racecourse Road
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	New Diwas Road
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	Batu Minas Road

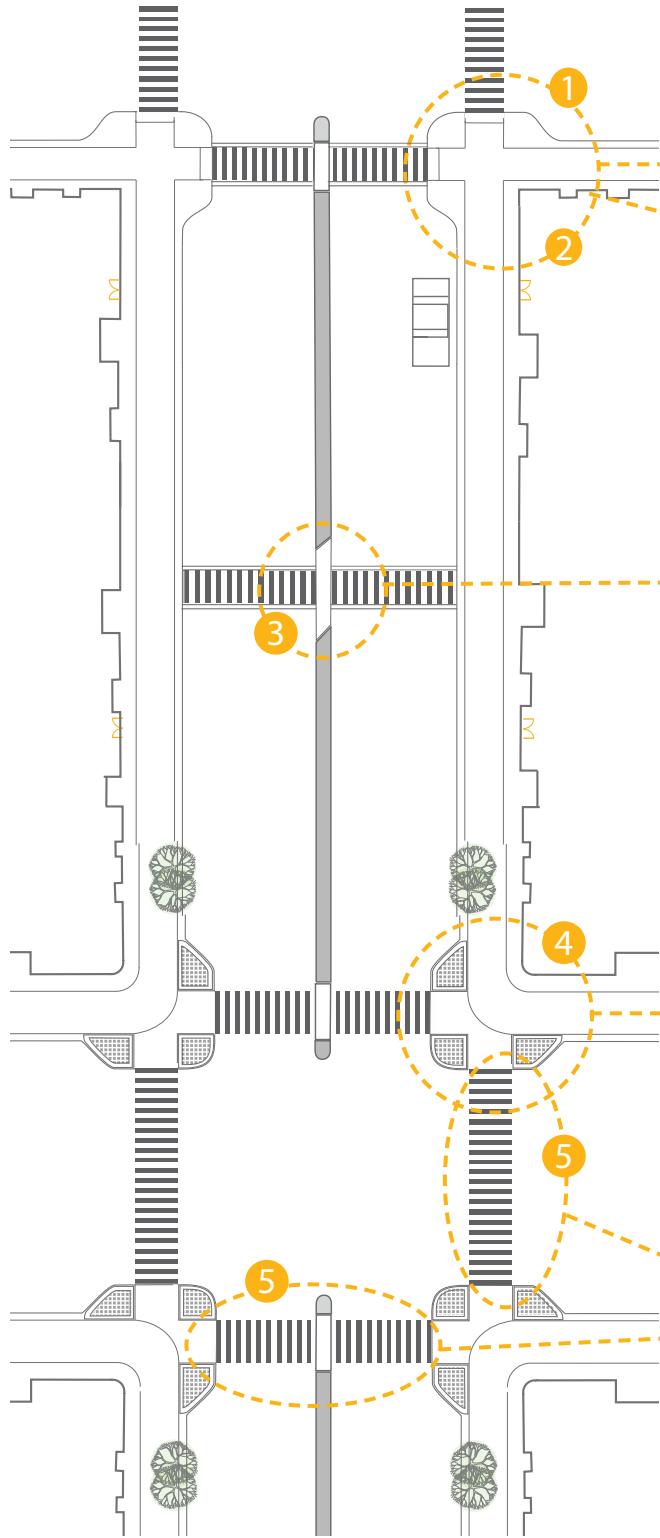
	Ratings out of 5	SUCCESES	MAJOR CHALLENGES
AVAILABILITY OF FOOTPATH			
Path Provision	3.2	Footpaths present for majority of studied corridors.	Excessively wide carriageway on many roads in relation to the amount of traffic and availability of existing footpath
Surface Condition	3.7	Good footpath surface condition.	
Adequate Width	3		
CROSSING			
Crossing Opportunities	3.8	Well placed crossing opportunities. (generally spaced every 200 m, never more than 500m)	
Crossing Wait Time & Ease	2.8		Long distances to cross
Crossing Distance	2.7		Difficult to discern when pedestrians intend to cross
Protection from Vehicles	3.1		
OBSTACLES			
Built Obstacles	3.2		Built obstructions including bus stops, sign masts, utility boxes, dumpsters, building encroachment.
AMENITIES			
Lighting	3.1		
Coverage	3.1	Well-shaded footpaths	Poorly located trees
Amenities/Aesthetics	2.7		
STREET/BUILDING INTERFACE			
Street/Building Interface	3	Strong footpath/building interface and active streetscapes.	Business spillout are a problem. Businesses use footpath as workspace or for display of products.
Crosswalk Encroachment	1.7		
PARKING			
Parking Obstructions	2.3		Unavailability of formally allocated parking space is a major problem
VENDOR INTERFERENCE	3.3		
GARBAGE/CLEANLINESS	2.7		
SECURITY	3.2		Crossings difficult and unsafe



FIVE PROMISING DESIGN FEATURES

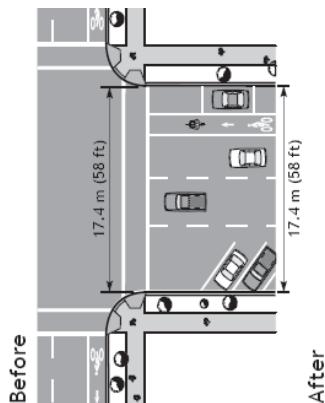


- 1 BULBOUTS
- 2 BOLLARDS AND STREET FURNITURE
- 3 REFUGE MEDIANS
- 4 TIGHT CURB RADII
- 5 RAISED, COLOURED, TEXTURED CROSSWALKS



1 BULBOUTS

- Provide a haven for commuters to wait before crossing.
- Reduce crossing distance.
- Make pedestrians more visible to motorists.
- Define parking bays.
- Can help to moderate vehicle speeds..
- Provide space for amenities.



2 TIGHT CURB RADII

- Prevent vehicles from rounding corners at high speeds.
- Shorten distance pedestrians must cross.
- Improve visibility of crossing pedestrians to turning motorists.



3 STREET FURNITURE & BOLLARDS

- Prevents vehicles from parking on pavement.
- Provide a barrier to protect pedestrians from errant vehicles.
- Can also function as a pedestrian amenity (benches, trees, etc.)



4 REFUGE MEDIANS

- Provide a safe in-between refuge for pedestrians as they make their way across the street reducing crossing distance.
- Curtail vehicle space.

5 RAISED, COLORED, TEXTURED CROSSWALKS

- Make locations of crossings more visible
- Help ensure that vehicles yield right-of-way to pedestrians.
- Help moderate vehicle speeds.





THE URBAN PLANNING CHALLENGE OF HAWKERS

STREET VENDORS – OR “HAWKERS” – ARE AN INESCAPABLE URBAN PLANNING CHALLENGE IN INDORE.

Hawkers are an essential part of the social and economic fabric of Indian cities. A study on street vendors in India by the National Alliance of Street Vendors in India found that the population of hawkers in Indore numbers 30,000, but that the city lacks specific laws for or against street vending. Street vendors appear in most high traffic areas and sell a wide range of products ranging from fresh fruits and vegetables, to prepared food, to clothing, to electronics, to services like shoe-shining and cellular repair.

For urban planners, hawkers are a double edged sword: they enhance the pedestrian environment in unique ways but in many cases also impede the movement of pedestrians. Street vendors provide an array of affordable goods and services at convenient points of access, enabling people to access these amenities close to their homes or offices or during the course of their commute. Street vendors thus save people time and allow them to forego vehicle trips. Hawkers liven the streetscape, creating a pedestrian environment that is vibrant, interesting, and – thanks to the eyes on the street – secure.

On the other hand, vendors may occupy sidewalks where there is insufficient space for vendors and their cart or stall, patrons, and walkers. The effective narrowing of the sidewalk causes pedestrian congestion and forces many pedestrians to walk in the vehicle carriageway. The Supreme Court has ruled that vendors are within their constitutional right to carry out trade and business. Nevertheless, the view of municipal authorities in many cities is that hawkers are obstructions or encroachments. Hawkers are often shutdown on this basis. Cracking down on hawkers is not only an infringement of rights. It is inconsistent with municipal authorities' tolerance of other types of encroachment such as illegal vehicle parking and business spill-out into the street. Perhaps most importantly, shutting down hawkers is a partial and temporary solution. Hawkers choose their locations because they know them to be profitable; the reward is great and therefore the probability of hawkers returning is high.

A more sustainable solution involves recognizing the right of hawkers to exist and creating spaces for them. It is crucial that the spaces allotted to hawkers are consistent with their natural markets. Simply allocating space to hawkers is not enough. If the spaces are not places that hawkers know are high traffic areas, hawkers will not use them. Hawkers thrive on being as accessible as possible; they will choose a space on the sidewalk over a stall in a market if the sidewalk brings more potential customers. It is incumbent on the city to begin a dialogue with street vendors to identify natural markets before it designates vendor's markets and no-vending zones.

The idea of creating space for vendors applies not just at the master plan level, but also at the streetscape level. It is simply not realistic to think that hawkers will not locate along some sidewalks; these sites are too integral to the business strategy of the hawkers. Planners and engineers should consider streets on a case-by-case basis and make a determination as to whether vending activity will be permitted on the sidewalks. They should consider:

- The number of hawkers present
- The tenure of the hawkers
- The role of hawkers in providing goods and services to the community
- The overall space available
- The presence of "dead space" which hawkers can inhabit without impeding pedestrian movement

On many streets, hawkers are a valuable part of the neighborhood, in spite of the fact that they use most or all of footpath space. In these cases, consideration should be given to widening the footpath. While widening the footpath does imply taking space away from the vehicle carriageway, in many cases, this space is already unavailable for vehicle use. Widening the footpath would simply reflect how roadspace is actually used. The benefits of widening the footpath in these cases are great: bringing the footpath out to the actual boundary between pedestrians and vehicles can improve safety and improve traffic flow by reducing pedestrian/vehicle friction. To be sure, such a solution will not be present on all streets. Many streets in Indore, though, have wide right-of-ways and can support footpaths of 3m or more which are wide enough to accommodate both vendors and pedestrians.

Reducing hawker interference of pedestrian movement will require enforcement. Engineers should coordinate with traffic police to determine which streets can accommodate hawking and clearly mark areas in which hawking is not allowed. Traffic police then need to enforce restrictions on hawking in prohibited zones. Such enforcement can only happen after a realistic assessment of where street vendors can be accommodated. To reverse this sequence would be a travesty of justice and an impossible enforcement battle.

WHO ARE THE HAWKERS?

The NASVI study included surveys, interviews, and population estimates of hawkers in seven cities: Mumbai, Ahmedabad, Calcutta, Imphal, Patna, Bhubaneshwar, and Bangalore. The study found that hawkers are largely drawn to the profession by low barriers to entry. For the urban poor, hawking is often the best option because it requires little capital or skills. Street vendors generally fall into two categories: (1) workers who moved from rural areas seeking work and (2) workers left unemployed by the departure of a major industry from a city, such as former textile mill workers in Mumbai. Incomes range from Rs 50 to 100 daily for men and from Rs 35 to 50 for women. Most work more than 10 hours a day. NASVI interviews with hawkers reveal that they face

the constant threat of shutdown or confiscation of their wares by municipal authorities or police, and that they often turn to bribery as a means of survival.

Hawkers are patronized by members of all strata of society. Middle and upper class citizens spend thousands of rupees monthly on fresh fruits and vegetables, prepared food, ready-made garments and other wares. These patrons report that they value the convenience and freshness of produce. Lower income citizens, meanwhile, often spend a significant share of their income shopping from hawkers, who typically have the lowest prices.

NATIONAL POLICY ON URBAN STREET HAWKERS

In 2006, the National Commission for Enterprises in the Unorganised Sector, issued a National Policy on Urban Street Vendors. This policy incorporates previous Supreme Court rulings that hold that street vendors are exercising their constitutional right to carry out trade or business (Sodhan Singh vs. NDMC, 1989) and that street vendors should not obstruct the free flow of traffic or movement of pedestrians (Sudhir Madan & others versus MCD & others, 2006). It recommends reforms to be undertaken by municipal authorities to “provide and promote a supportive environment for earning livelihoods to the vast mass of urban Street Vendors while ensuring that such activity does not lead to overcrowding and unsanitary conditions in public spaces and streets.”

Among other things, the policy calls on municipal authorities to:

- Constitute Town Vending Committees – bodies to be formed on a ward basis consisting of (1) Designated official of Municipal Authorities, (ii) Traffic and Local Police; (iii) Public Land Owning Authority; (iv) Representative from associations of Street Vendors; and, (v) Representative from a bank in the local area.
- Conduct surveys of Street Vendors and their locations to determine numbers and sites of natural markets
- Designate Vendor Markets and No-Vending Zones.
- Equip Vendor’s Markets with facilities including: (i) Provisions for solid waste disposal; (ii) Public toilets to maintain cleanliness; (iii) Aesthetic design of mobile stalls/ push carts; (iv) Provision for electricity; (v) Provision for drinking water; (vi) Provision for protective covers to protect their wares as well as themselves from heat, rain, dust etc; and, (vii) Storage facilities including cold storage.

Vendor Interface	
★★★★★	★★★★★
<ul style="list-style-type: none"> • Completely obstructed. • Use of pathway is impossible. • Many pedestrians walk entirely on the road 	<ul style="list-style-type: none"> • No vendor obstructions. • Walking is convenient. • Vendors may be present but they do not impede walking.

HAWKER INTERFACE



YN Road Hawkers interfere with pedestrian movement. The footpath needs to be widened in order to accommodate both vendors and pedestrians.



RNT Road In most cases, vendors are located in the dead spaces, not obstructing pedestrian movement.



RNT Road



Navlakh Road A wider footpath could likely accommodate a row of vendors and bidirectional pedestrian traffic.



Fruit and vegetable vendors block this crosswalk.



Manik Bagh Road Certain footpaths may need to be widened.



Racecourse road There is enough space for both vendors and pedestrian movement, however in some cases the vendors are haphazardly placed hindering movement.



Malwa Road/ New Diwas Road Fruit and vegetable vendors interfere with movement on the northbound side near Patni Puri Jn. This appears to be one of the city's major vegetable markets and is heavily patronized. The vendors likely value the high level of exposure from this heavily travelled road.

	Annapoorna Road	YN Road	RNT Road	Navlakah Main Road	Manik Bagh Road	Racecourse Road	New Diwas Road	Batu Minas Road
Adequate Width	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Vendor Interference	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

ANNAPOORNA ROAD & YN ROAD

These roads were built with 2 MV lanes in each direction (3.5m wide), a curb-segregated non-motorized vehicle lane, (NMV) and a footpath in each direction.

① Parking on pavements due to mountable curbs, made for business access.

② The footpath is obstructed by business spill-out, built obstacles like road signs and bus stops, hawkers, and parked vehicles.

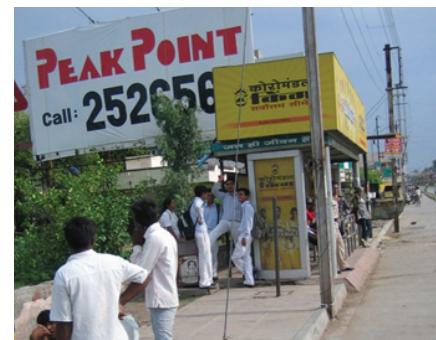
③ The non-motorized vehicle lane (NMV) is used for parking vehicles and pedestrians walking around the obstructed footpath.

④ Many choose to ply the MV carriage-way to avoid the obstructions in the NMV lane.



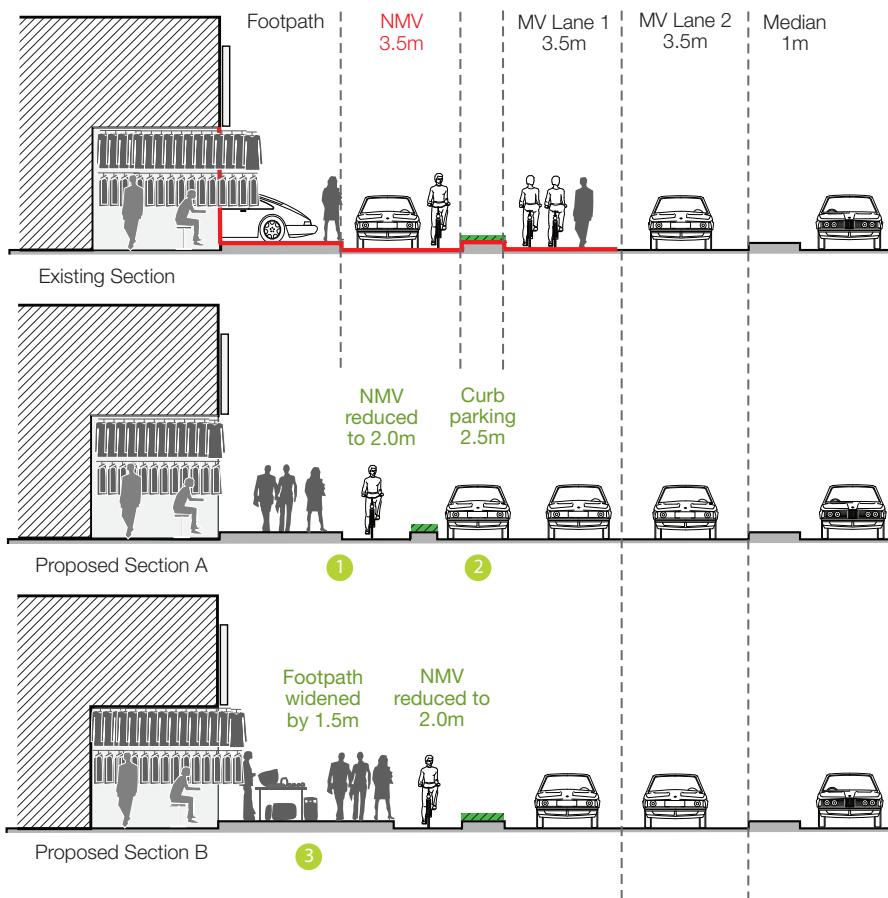
Primary Issues -

- 1- Parking obstructions on the footpath and the NMV lane.
- 2 - Inadequate width of pavement to accommodate vendors and businesses.





RECOMMENDATIONS-



1 Elimination of mountable curbs to stop vehicular parking in footpath.

2 Provision for on-street parking. This can be done by narrowing NMV to 2m from existing 3.5m.

3 Extra space can be used by vendors or for bus stops etc. In some sections instead of on-street parking, the footpath can be widened by 1.5m by reducing the NMV to 2m.

4 Reduced crossing distance for pedestrians. Both solutions will also ensure that the on-street parking space remains used as such, curb bulb-outs can be built which prevent vehicles from driving in the parking lane. These bulb-outs can also form the basis for mid-block crossing opportunities. Such crossings opportunities would be appropriate in places where the spacing between junctions is high (in some sections of Annapoorna Rd it is greater than 500 meters) or at certain major activity centers (such as near Annapoorna Temple). Planters can also be used to prevent encroachment of on-street parking by drivers.

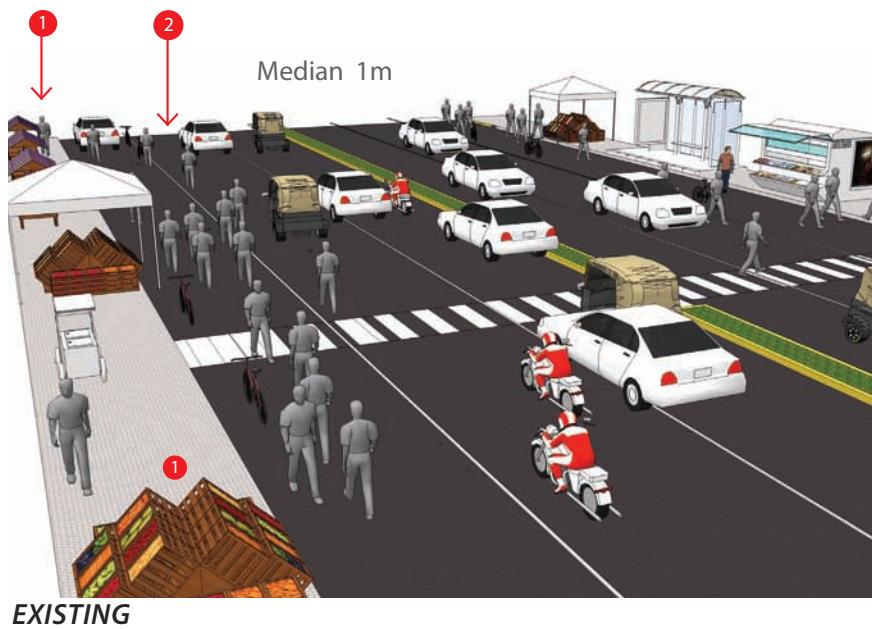
MALWA MILL MAIN ROAD

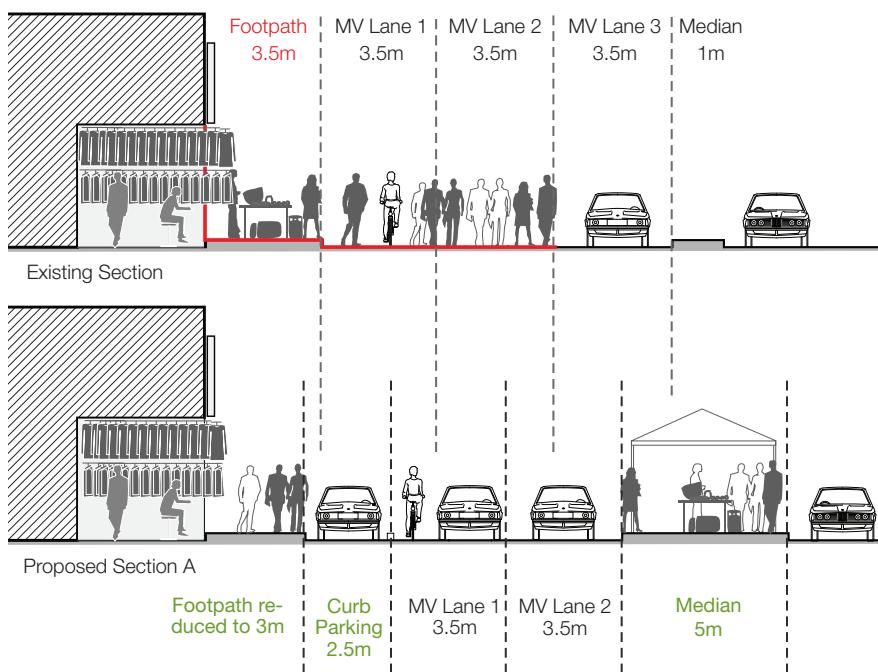
Malwa Mill Main Rd is a 30m wide road. It has 3 MV lanes in each direction, each 3.5m in width, a 1m median, and a 3.5m wide footpath on each side.

- ① The footpath is highly obstructed by fruit and vegetable vendors and shops which use the footpath for display of their products. In most places, the footpath is so obstructed that it is unusable.**

The fruit and vegetable vendors obstructing the sidewalk are heavily patronized and are a fixture in the neighborhood. Many people are dependent on the presence of vendors in this neighborhood – both the vendors and their families who earn their livelihood and the patrons who shop there. Any realistic solution to the obstruction of pedestrian space on this road should respect the rights of the vendors and the needs of the community.

- ② Pedestrians walk in the middle and the outer most lane of the carriageway** and often posing a safety risk and obstructing vehicular movement.





RECOMMENDATIONS-

① Introduction of curb parking

Steps:

- Remove the outermost M.V. lane in each direction.
- Footpath in each direction to be 3m.
- Curb parking lane to be made 2.5m.
- M.V. lanes to remain 3.5m wide.

② A center median hawker market

The center median would be 5 m wide. A center median market will provide vendors with a high level of visibility and accessibility from both sides of the road.

While vendors may be skeptical about relocating to markets where they are not easily visible to passing traffic, a center median market preserves the high accessibility that vendors value in choosing a location. At 5 m wide, the center median will be wide enough for hawkers' carts and stands as well as comfortable pedestrian movement. This center space can also be used for planting trees, benches, drinking fountains, and other amenities that improve the space.

③ Traffic calming can be used to ensure that pedestrians can cross safely to and from the center median. Speed humps in advance of crossing points force vehicles to slow and see pedestrians. Bulbouts shorten the crossing distance and make the intention of pedestrians wishing to cross unambiguous; the narrowing of the carriageway from the bulbout also helps reduce vehicle speed. Finally, prominently painting the zebra crossing will improve visibility of pedestrians.