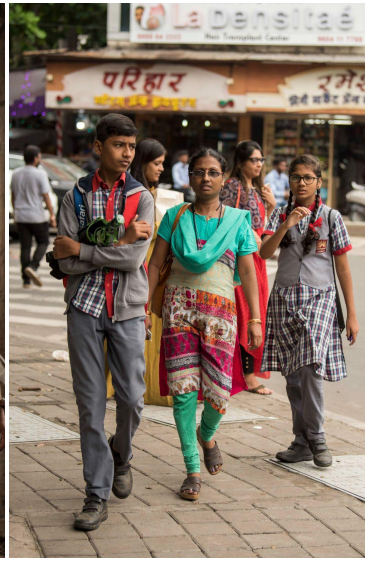
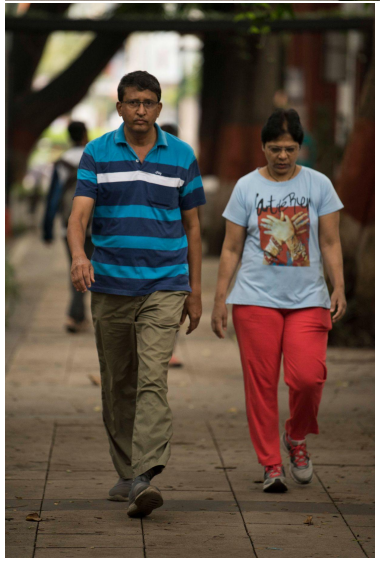







Pune's Walk & Cycle Analysis

11th December '22

Prepared for **Pune Municipal Corporation** by

ITDP INDIA

ITDP Team
Pranjal Kulkarni, Siddhartha Godbole, Rutuja Nivate, Suraj Bartakke, Aishwarya Soni, Naveenaa Munuswamy

Mentor
Pranjal Kulkarni

With inputs from
Harshad Abhyankar
Pranjali Deshpande

Pune Municipal Corporation (PMC) team
Led by VG Kulkarni (CE) with Meera Sabnis (SE1), Sahebrao Dandge (SE2), Dinkar Gojare (EE) and Nikhil Mijar (Transport planner)

Acknowledgements
We would sincerely like to thank the team of surveyors from PMC:
Atul More, Shubham Kadam, Asif Shaikh, Nikhil Jadhav, Aditya Belpatre, and Shubham Runwal.

Cover images shot by: Sarath KT

For more information contact: siddhartha@itdp.org

Foreword

Pune has consistently been taking steps to improve the walking and cycling (Non motorised) experience of its citizens. The lack of adequate, safe and comfortable walking and cycling infrastructure discourages people from walking and cycling, and increases the dependency on personal motor vehicles, leading to congestion and air pollution in our city.

Unfortunately, we still have parts of the city where we see a lot of people forced to walk on the motor vehicle lanes, cyclists unable to ride on the cycle tracks, school children crossing streets with speeding traffic, and the elderly struggling to board the buses.

Footpaths—their condition, design, and usage greatly affects the walkability of our citizens. While we are creating high-quality footpaths and cycle tracks, there is an immediate need to measure and improve the state of pedestrian and cycling infrastructure on the other streets.

Prioritizing NMT infrastructure will help improve accessibility, mobility, and most importantly, road safety—thus creating a liveable Pune with a better quality of life.

With this sole purpose in mind, we have developed ‘Pune’s Walk & Cycle Analysis’ to shed light on the gaps in our streets and help identify the areas in need of urgent improvements. The scoring in this report will help us take immediate action on the low-scoring streets and make budgetary provisions for the retrofitting and creation of new walking-and-cycling-friendly infrastructure. This is how we can truly celebrate the Pedestrians’ Day—by putting our pedestrians on top priority.

Vikas Dhakane

Additional Commissioner (Special)
Pune Municipal Corporation


croma
vivo

Contents

Introduction

Walking and cycling in Pune provides affordable travel to all sections of the society to access work, education, recreation and other activities.

Pune has been taking steps to improve walking and cycling experience in the city. These include the adoption of progressive policies, non-motorized transport (NMT) friendly plans, and street design guidelines, along with transforming the streets through the street design initiatives.
In 2008, Pune's Comprehensive Mobility Plan (CMP) set the goal of ensuring that **by 2031, over 90 per cent of all trips happen by non-motorised transport (NMT) and public transport.**

For achieving this target, all sections of the city would need to have good walking and cycling infrastructure with universal access to buses. The absence of safe and comfortable walking and cycling routes increase the dependency on personal motor vehicles, especially for short trips. This results in congestion and air pollution in the city and has a negative impact on health, environment, and economy. It also negatively affects road safety, inclusivity, and universal accessibility.

This analysis sheds light on the gaps in our streets and helps to identify the areas in need of interventions. Its is expected that urban designers and engineers use the indicators for analysing the impact of street designs going ahead.

Outcomes of the analysis include:

To Identify gaps in existing practices in designing and implementing streets

To create a standardised scoring system for all streets

To prepare **street budgets** and create funding provisions for scaling up street design

To build a citywide interactive **GIS database**

To craft an impactful **narrative, supported with data and evidence**

The analysis framework measures streets on

4 principles

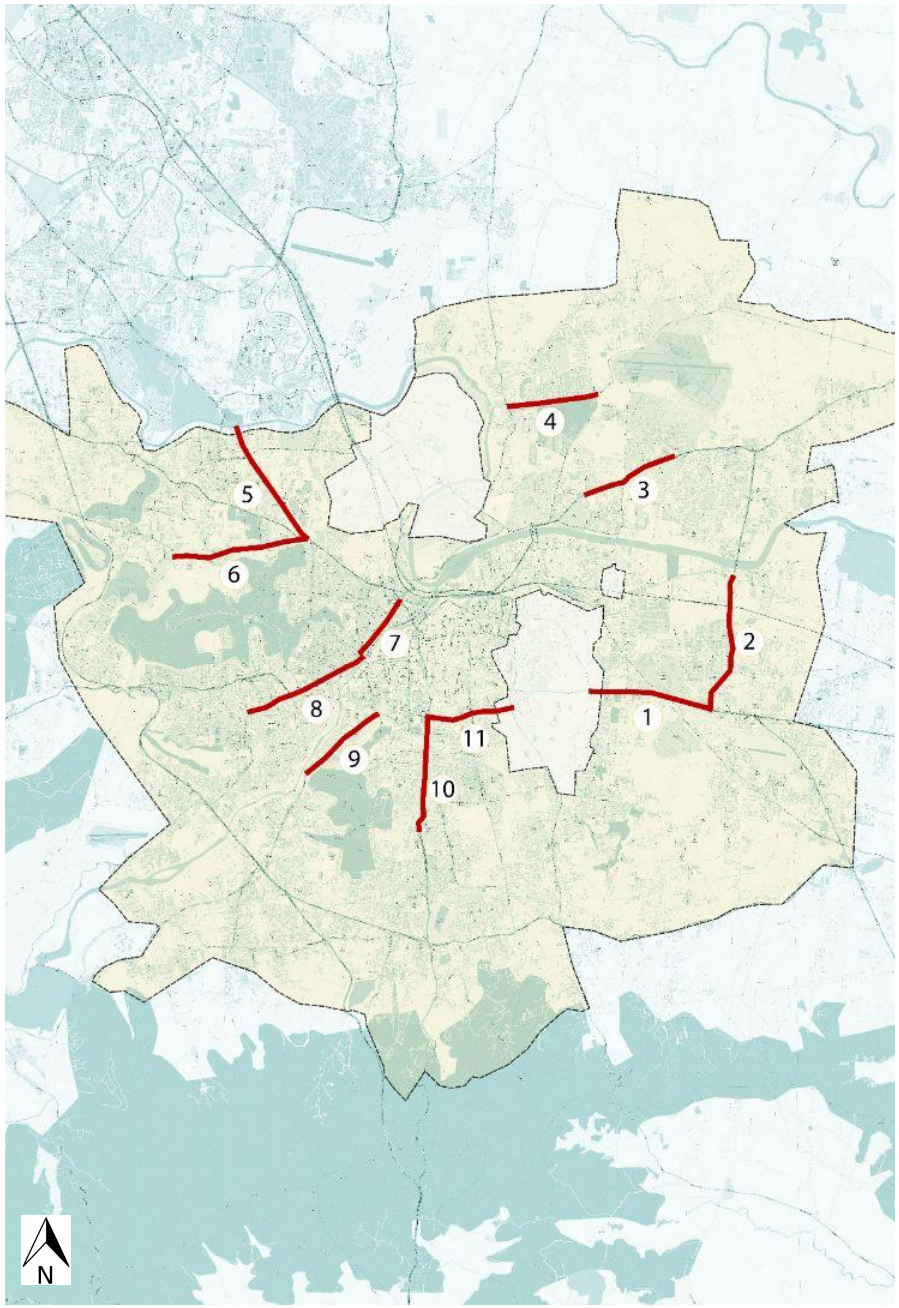
1 Ease of movement

2 Safety

3 Universal accessibility

4 Liveability

ii Methodology



The assessment includes three types of surveys:

- **Design surveys-** to assess efficiency and adherence to standards and guidelines.
- **Observation surveys-** to understand the street usage and activities.
- **Perception surveys-** to understand what vulnerable groups such as young and elderly pedestrians, cyclists, and public transport users feel about the walking and cycling facilities.

11 streets—with Right-of-Way (ROW) exceeding 24m—from different zones of the city were selected in consultation with engineers from the Pune Municipal Corporation. These streets selected are:

1. **Pune - Solapur Road**
2. **Magarpatta - Mundhwa Road**
3. **Nagar Road**
4. **Vishrantwadi Road**
5. **Raj Bhavan Road**
6. **Pashan Road**
7. **Jangli Maharaj Road**
8. **Karve Road**
9. **Sinhagad road**
10. **Satara Road**
11. **Shankarsheth Road**

Each street is divided into segments, from junction to junction—the length of each varying between 0.5 KM to 1 KM—as street character changes at mostly 0.5-1 KM distance, and for the ease of surveying.

Separate surveys for both **Left-Hand-Side (LHS) and Right-Hand-Side (RHS)** of the streets were undertaken. All surveys were conducted between October and November 2022, during both morning (9am to 11am) and evening (5pm to 7pm) peak hours.

Design surveys

To understand **how well the street has been designed** (in accordance with the Pune Urban Street Design Guidelines, and relevant IRC guidelines); **a total of 30 km of streets were analysed** against a set of Indicators and sub indicators, assigning a **Level of Service (LoS)**.

LoS A: The design of the street is exactly compatible with the recommendations.
LoS B: The design diverts very slightly from the recommendations.
LoS C: Very few street elements are compliant with the recommendations.
LoS D: The street does not comply at all with the recommendations.

Indicators for the Design Survey:

1. **Ease of Movement**
   a. Adequate pedestrian zone
   b. Continuous cycle track
   c. Designed parking
2. **Safety**
   a. Traffic calmed streets
   b. Pedestrian refuge at intersections
   c. Pedestrian crossing
   d. Lighting
   e. NMT zones with green buffer
3. **Universal Accessibility**
   a. Universally Accessible NMT zone
   b. Universally Accessible Crossing
   c. Uniform surface
   d. Wayfinding
   e. Rest spaces
4. **Liveability**
   a. The indicator was analysed based on walking/cycling comfort, and opportunities to pause & play.

Observation surveys

How is the street being used, can differ from the intent with which it has been designed. In order to understand whether the walking & cycling facilities are being used as desired, the following set of on-site surveys were conducted:

Vehicular volume counts

Pedestrian volume counts

Activity mapping

Pedestrian movement patterns

Infrastructural conditions

Parking patterns

Perception surveys

To understand how people experience the street, it is necessary to seek feedback through surveys, especially from vulnerable street users—caregivers with infants and toddlers, people with disabilities, women, elderly, and public transport users.

We surveyed 2300 people, of which 65% were male, and 35% were female. 32% of them were pedestrians, and 40% were public transport users.

Some of the important questions asked were:

1. Do you feel the footpath is adequate?
2. What obstruction do you face while walking?
3. Do you use the cycle track/lane for cycling
4. What obstructions do you face while cycling
5. Can you move easily around the footpath (for people with disabilities
6. Would you feel safe letting your kid walk along on this street without holding hands? (for caretakers)
7. What issues do you face while crossing the street?
8. What issues do you face at night?
9. Which part of the street do you feel most unsafe on?

Key findings

- ***Streets designed as per the Urban Street Design Guidelines have performed better in all 3 surveys - Design, observation & perception.*** Citizens involved in various activities like sitting, exercising, studying, socialising, hanging out with kids, etc are great indicators for liveable streets.
- Out of the streets selected for the assessment, **JM road has performed better followed by Rajbhavan road and Satara road.**
- On the other hand, **other streets Magarpatta-Mundhwa Road, Vishrantwadi road and Shankarsheth road have scored lowest.**

- Although most of the selected streets had some 'provision of footpaths and cycle tracks', a large percentage of the people were forced to walk 'off-the-footpaths' - on MV lanes and cycle tracks. ***In poorly faring streets, the number was as high as 80%.*** The major deterring factors while using the footpath were- obstructions, inadequate width, poor condition, security concerns and lack of enforcement resulting in parked and plying vehicles.

- These large number of people walking on the cycle tracks have also negatively affected the efficiency of the cycle tracks.
  32% ***people feel lack of cycling infrastructure is a deterrent for cycling,*** **28%** ***feel vehicle (parked and moving) on cycle tracks cause major inconvenience followed by 20% who feel pedestrians on cycle tracks make cycling on cycle tracks difficult.***
- **34%** ***of the surveyed people highlighted that they would definitely take up cycling if safer cycling infrastructure is provided,*** **28%** ***said they 'might' take up cycling for short trips.***

- **30% of the total length surveyed on the selected streets have 'present but unusable' footpaths.** That means although the streets have basic footpaths, their usability is compromised- mainly due to parked vehicles, commercial spillover, poor surface, inadequate widths, obstructions like DP boxes, trees pits etc.

- On an average each selected street has 6 to 7 schools within 5 minutes of walking distance. However, of the 675 caregivers interviewed, **only 14%** ***people have responded to "Feeling safe to let their kids walk to school unsupervised."***
  The young pedestrians and cyclists have to face the threat of speeding vehicles. Added to this woes are the lack of safe crossing points at mid blocks and intersections which results in many accidents.

- **2 junctions-Vaiduwadi chowk and Kharadi Bypass junction-** on the selected streets have been identified as severe accident-prone blackspots by the trafic police.

- ***Haphazard parking has been another key deterrent for inclusive and accessible streets.*** At many locations it was found that footpaths have been encroached by parked vehicles. Unfortunately; vehicles, especially 2-wheelers have been speedily plying on the cycle-tracks and even footpaths.

Walk & Cycle Analysis

The summary provides **cumulative scoring based on all surveys** for all the selected streets. The intention of the table is to help us understand the severity of the need for intervention on the streets. The scoring of streets can be improved by intervening accordingly.

#	Street Name	Design score	Observation score	Perception score	Total score (out of 30)
1	Pune - Solapur Road	3.5/10	5/10	5/10	13.5
2	Magarpatta - Mundhwa Road	3/10	2.5/10	1.5/10	7
3	Nagar Road	5/10	4/10	4/10	13
4	Vishrantwadi Road	3/10	2.5/10	2.5/10	8
5	Raj Bhavan Road	6/10	7.5/10	7.5/10	21
6	Pashan Road	3.5/10	5/10	4/10	12.5
7	Jangli Maharaj Road	7.5/10	9/10	9/10	25.5
8	Karve Road	4.5/10	5/10	6/10	15.5
9	Sinhagad road	4/10	5/10	3.5/10	12.5
10	Satara Road	5.5/10	7.5/10	6.5/10	19.5
11	Shankarsheth Road	3/10	3.5/10	4/10	10.5

1Pune-Solapur Road

Design	Observation	Perception
3.5/10	5/10	5/10

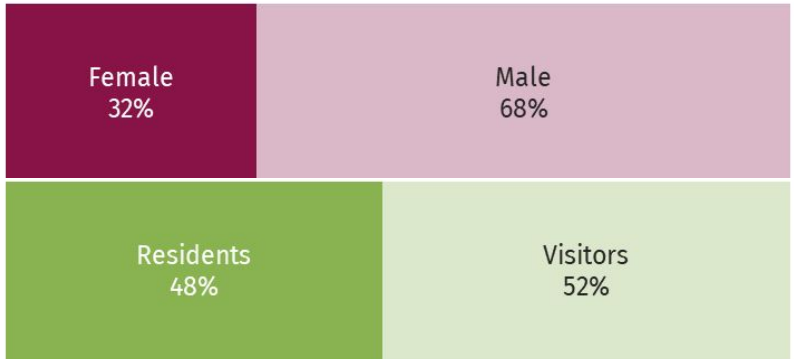
Character: Arterial road with commercial establishments and institutions
Right-of-Way: **42m**
Selected Length for study: **3.1km**

Street redeveloped in **2007-09**

Street design as per guidelines:
As per Pune USDG: 7M Carriageway + 3M Service Lane with FP and CT on both sides
As per Pune Bicycle Plan: 2M dedicated cycle lane on both sides
BRT lane: Yes
Metro: Proposed
Grade separator: Railway bridge

As per the latest traffic data, Vaiduwadi junction on the street has been identified as a 'black spot' - severe accident prone zone.

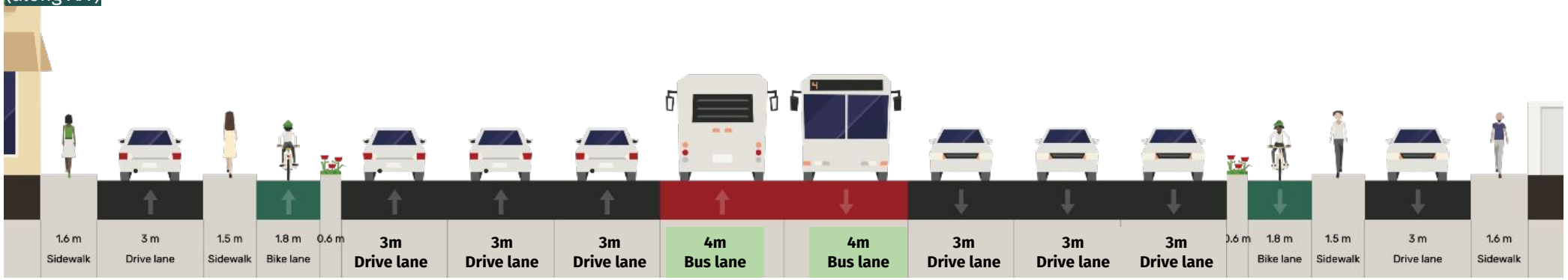
209 respondents
for the perception survey



Volume counts:
Conducted during morning and evening peak hours, for both sides of the roads at **Vaiduwadi bus stop**.

						PMP		PVT.		
☀	1561	42	2286	8880	1452	144	24	60	348	108
☾	1554	80	2400	7508	1472	84	16	180	384	220

Street section
(along AA')




Lack of safe pedestrian access to bus stops


2w on cycle tracks and footpaths


Unsafe junctions


Vehicles on footpaths at railway bridge


Parked vehicles around car dealer showrooms

Footpaths blocked by private properties

Parking encroachment

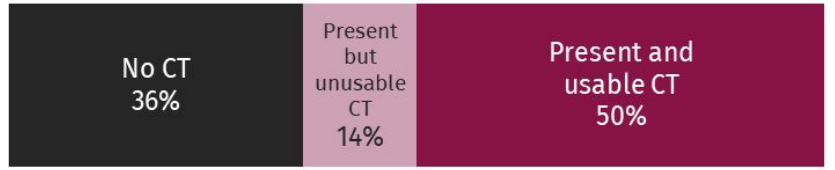

Poor maintenance

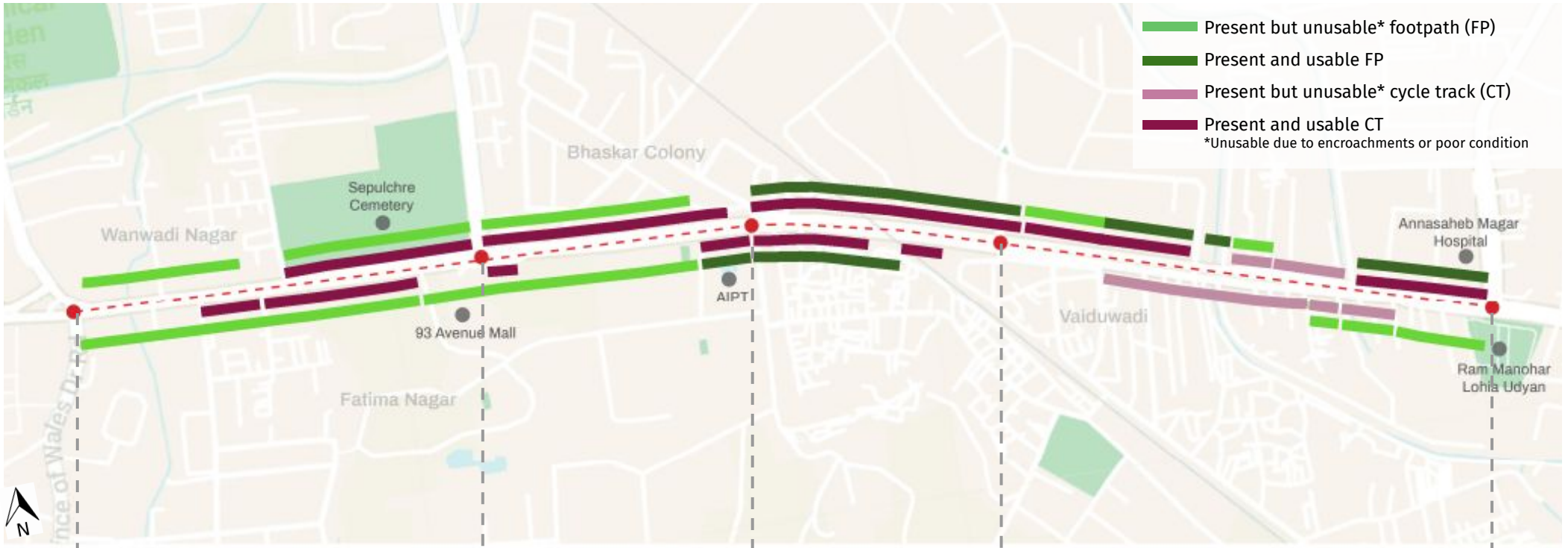

Poor condition of surface

Observed footpath & cycle track condition along the stretch

Only 1/4th of the stretch has usable footpath

Only half of the stretch has usable cycle track





On & off footpath pedestrian count during morning peak hour, segment-wise

	Segment 1	Segment 2	Segment 3	Segment 4
On FP	64	109	205	309
Off FP	724	728	1188	1252
	788	837	1393	1561

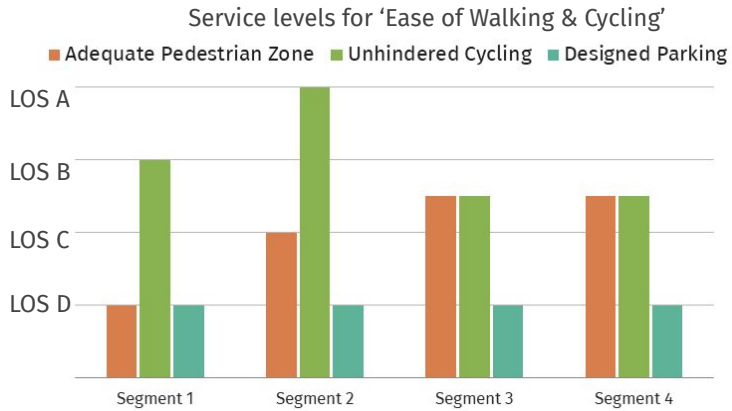
More than 80% of the pedestrians were forced to walk off footpath!

Ease of walking

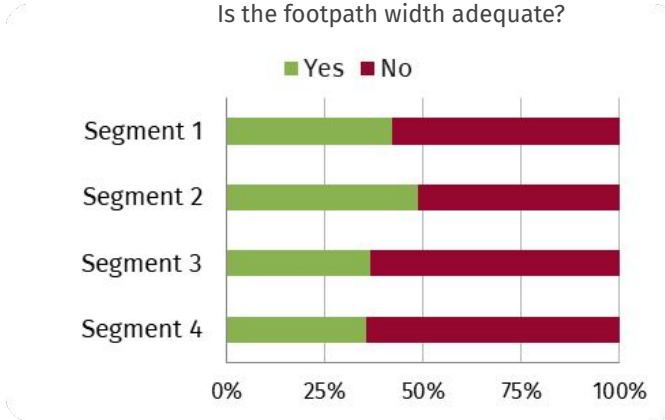
Recommendations

1. **Footpath and cycle track resurfacing** for entire street.
2. **Enforcement to curb motor vehicles plying** on footpath and cycle track.
3. **Parking enforcement** near Cemetery, 93 Avenue mall and before Railway Bridge.

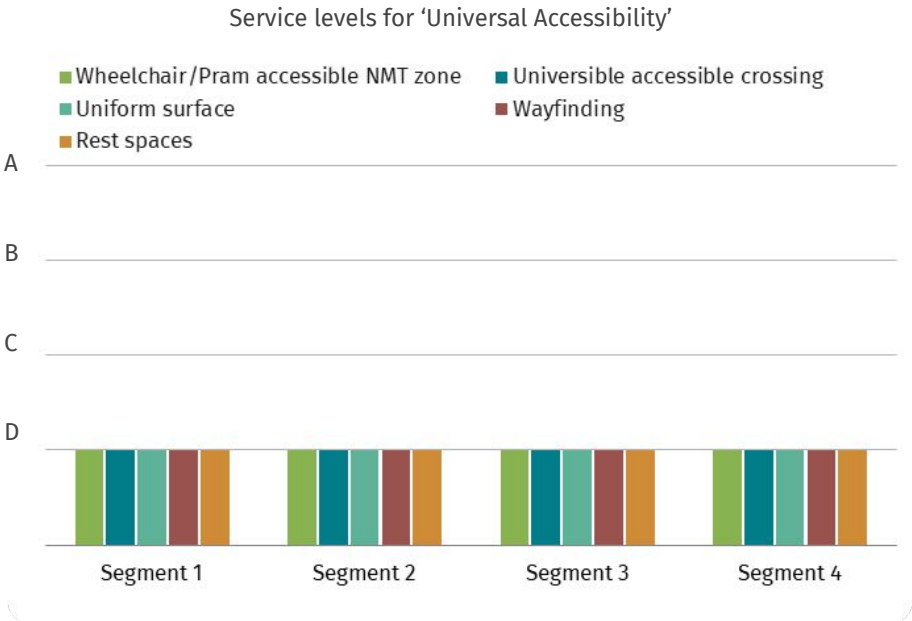
All segments have LoS <B in terms of adequate pedestrian zone. All segments fared LoS D in terms of managed parking.



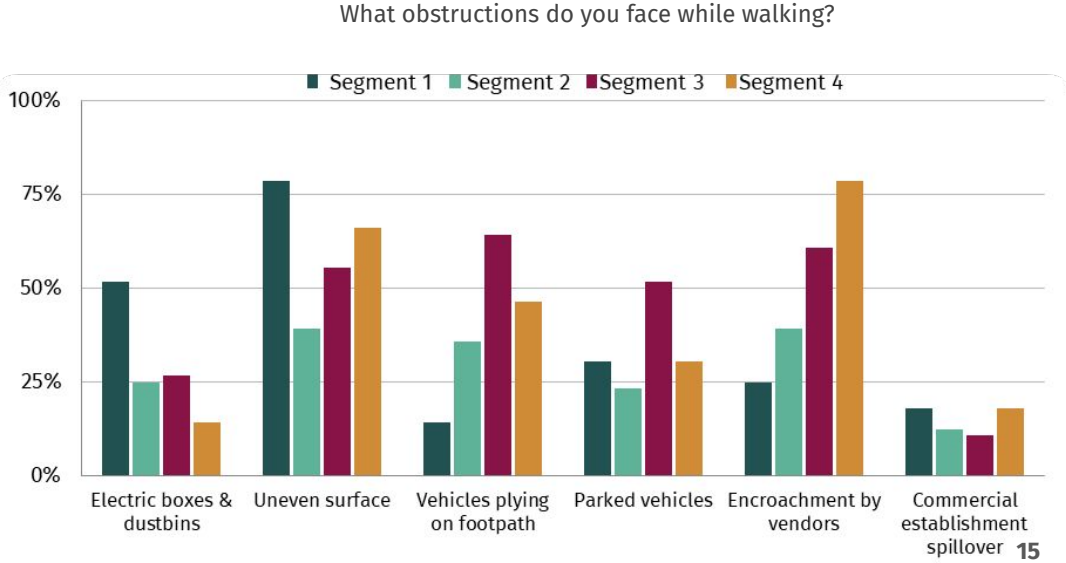
More than 60% of respondents felt that the footpath width was not adequate, mostly due to commercial and vehicular encroachments.



All segments fared LoS D for all indicators of universal accessibility.



More than 60% of respondents felt that uneven surface and vehicles on footpaths were major obstructions while walking .



Ease of cycling

Recommendations

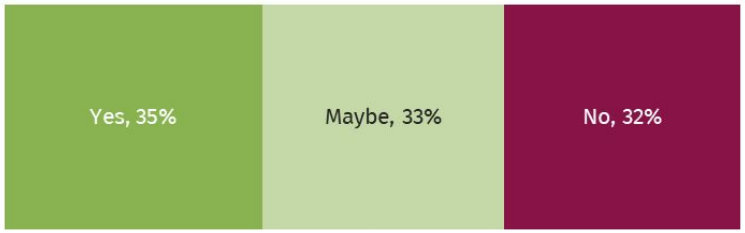
1. **Removing vendor & commercial encroachment** especially near car resale shops, from Dafanbhoomi to Kalubai Chowk and near Vaiduwadi Jn.
2. **Signages -** No Parking, cycle track - as per norms in the USDG.
3. **Bollards - a**t entry points for cycle track and footpath

3 out of 4 cyclists on segment 1 did not ride on the cycle track, as it was rendered unusable due to encroachments, discontinuous cycle tracks, and vehicles and pedestrians on the cycle track.

Do you use the cycle track?

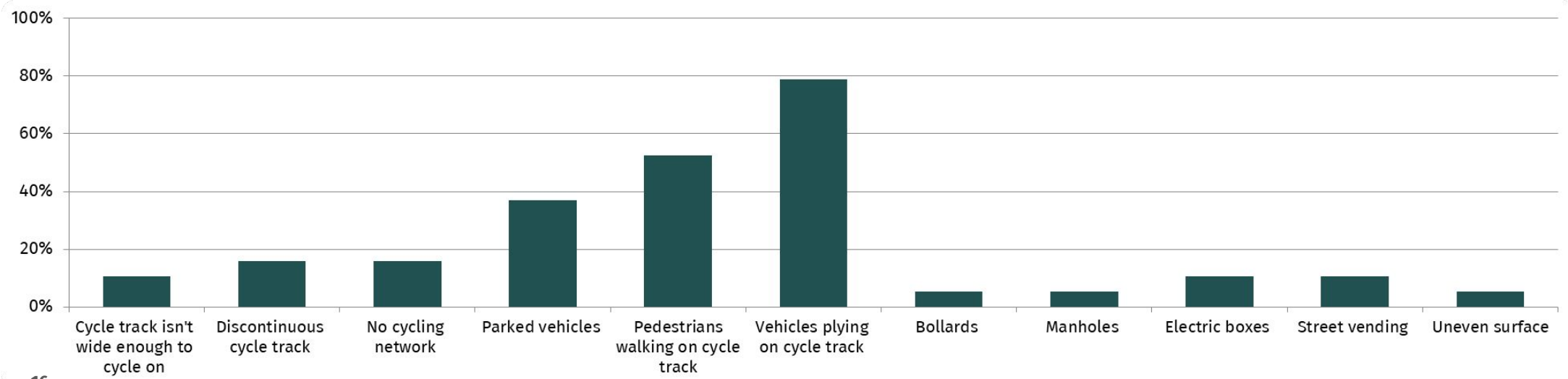
Amongst the people interviewed, more than 65% will consider cycling for shorter trips, if better cycling infrastructure is provided.

Would you cycle for shorter trips if the right infrastructure is provided?



Nearly 80% of cyclists felt that vehicles plying on cycle track were an obstruction. More than 50% of them felt that they were hindered by pedestrians walking on cycle track, as the footpath is not usable due to encroachments.

What obstructions do you face while cycling?

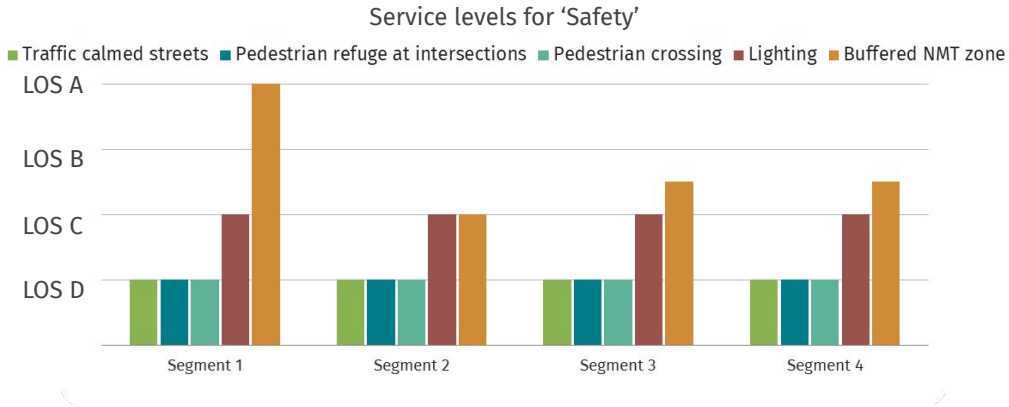


Safety

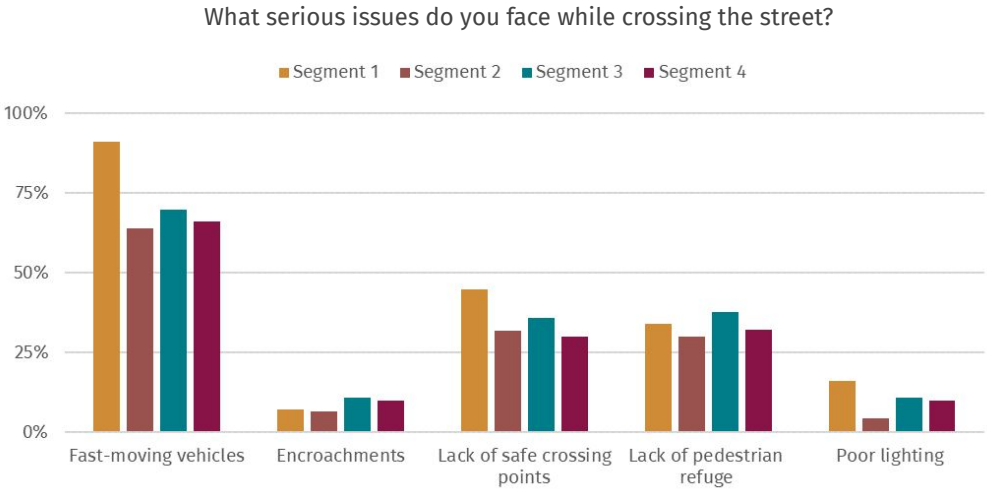
Recommendations

1. **Pedestrian refuge** at at all junctions.
2. **Pedestrian phasing at signals** at all 4 major junctions.
3. **Table top, zebra crossing and traffic calming** at all BRT/non-BRT stops.
4. **Lighting** especially before and after the railway bridge.

All segments fared LoS D in terms of traffic calmed streets, pedestrian crossing, and pedestrian refuges at intersections. Lighting was LoS C in all segments.

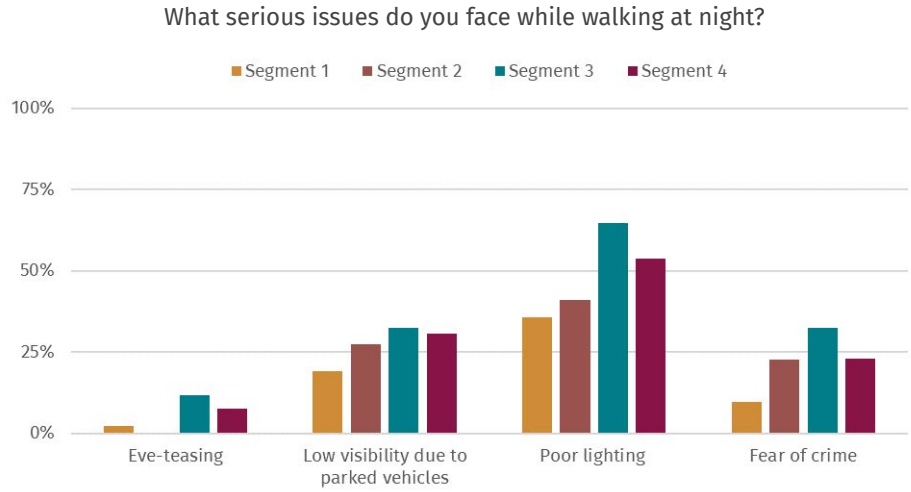


Nearly 80% felt unsafe while crossing due to fast moving vehicles.. People also highlighted the lack of safe crossing points and pedestrian refuge as major concerns.



Of the 92 caregivers surveyed, nearly 90% did not find the street safe for children to walk unsupervised.

Of the 111 people who had used the street at nights, more than 50% of them felt unsafe at nights due to poor lighting. 1 in 4 of the respondents faced low visibility due to parked vehicles.



2Magarpatta-Mundhwa Road

Design	Observation	Perception
3/10	2.5/10	1.5/10

Character: Sub-arterial street with mixed land-use
Right-of-Way: **24-27m**
Selected Length for study: **2.5km**

Street redeveloped **partially in 2008**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with 2.5M clear footpath
As per Pune Bicycle Plan: 2M dedicated cycle track on both sides
BRT lane: No
Metro: Proposed: No
Grade separator: Yes, multiple.

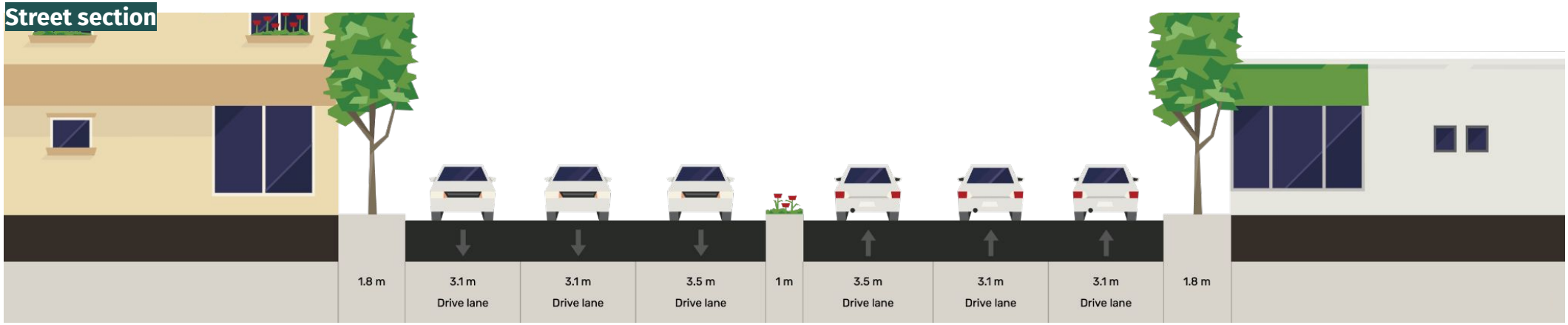
The streets provides main access to Magarpatta, Amanora and many other townships.

92 respondents
for the perception survey

Volume counts:
Conducted during ☀ morning and ☾ evening peak hours, for both sides of the roads at **Noble hospital Annexe.**

☀	870	48	888	3780	840	36	6	54	132	132
☾	1300	72	2020	5336	880	28	0	96	224	116

Street section




Inadequate clear walking path.


People accessing bus stops.


No footpaths near street towards Sundar Sankul.


Narrow footpaths near Noble Hospital.


Wide footpath opposite Seasons mall.


Extremely narrow footpaths forcing people to walk on MV lanes


Lack of continuity of footpaths.

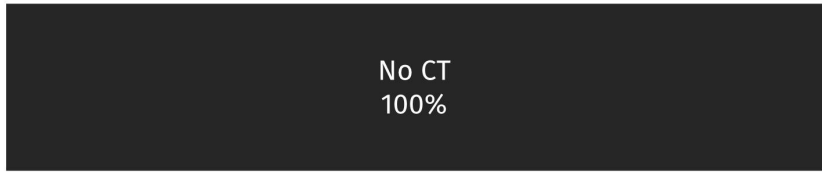

Obstructions by DP boxes.


Encroached narrow footpaths.

Observed footpath & cycle track condition along the stretch

60 % of the streets has no or unusable footpath.

Entire stretch has no cycle track.



SEGMENT 1 | **SEGMENT 2**

Magarpatta Chowk — ***Magarpatta South Gate*** — ***Raskar Chowk***

On & off footpath pedestrian count during morning peak hour, segment-wise

	Segment 1	Segment 2
On FP	672	528
Off FP	198	66
	870	594

**near Noble hospital

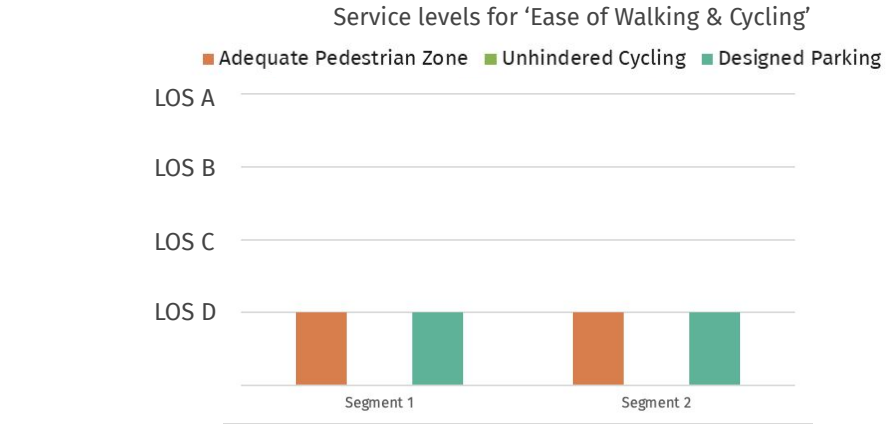
The Magarpatta township side of the street has basic footpath provisions. However, most of the opposite side has discontinuous or no footpath, forcing people to walk on the MV lanes.

Ease of walking

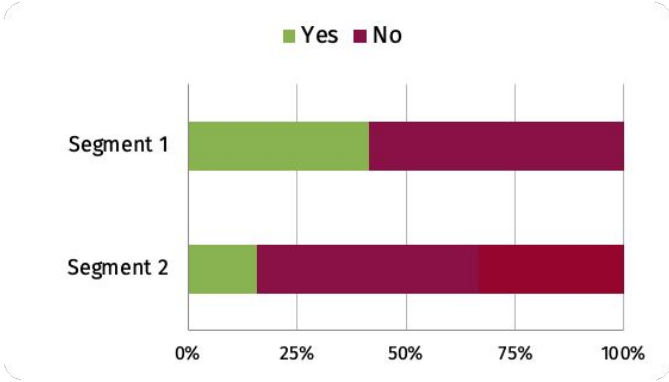
Recommendations

1. The entire stretch has poor walking and cycling infrastructure. Most of the RoW is dedicated to vehicular movement. There is an urgent need to provide basic **continuous footpath especially on the Amanora mall side.**
2. At many places pedestrian movement is **obstructed** by trees, DP boxes and parked vehicles.
3. **Ramps, continuous footpath at property entrances,** need to be added on priority.

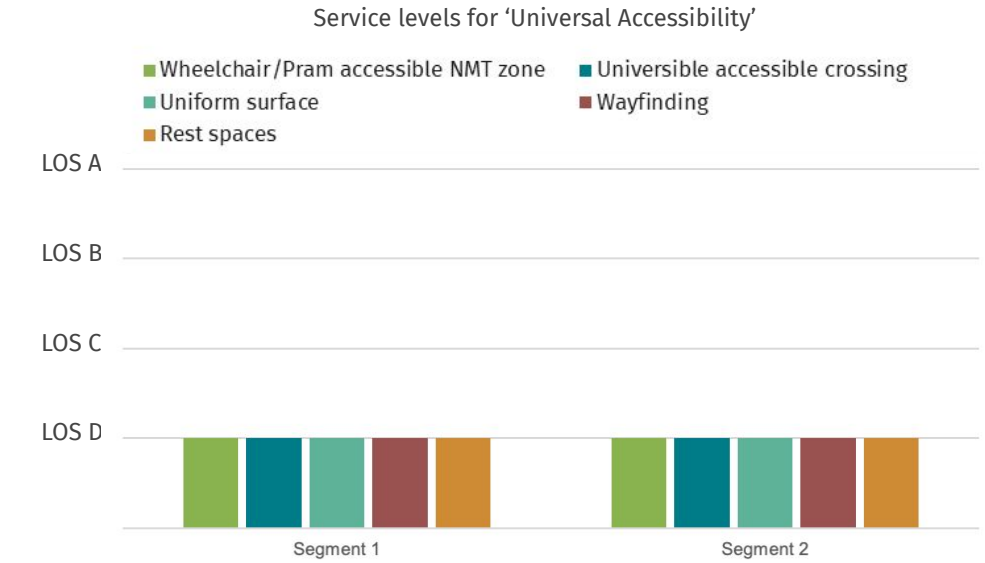
All segments fared LoS D in pedestrian and parking infrastructure. Cycle track/lane is absent throughout.



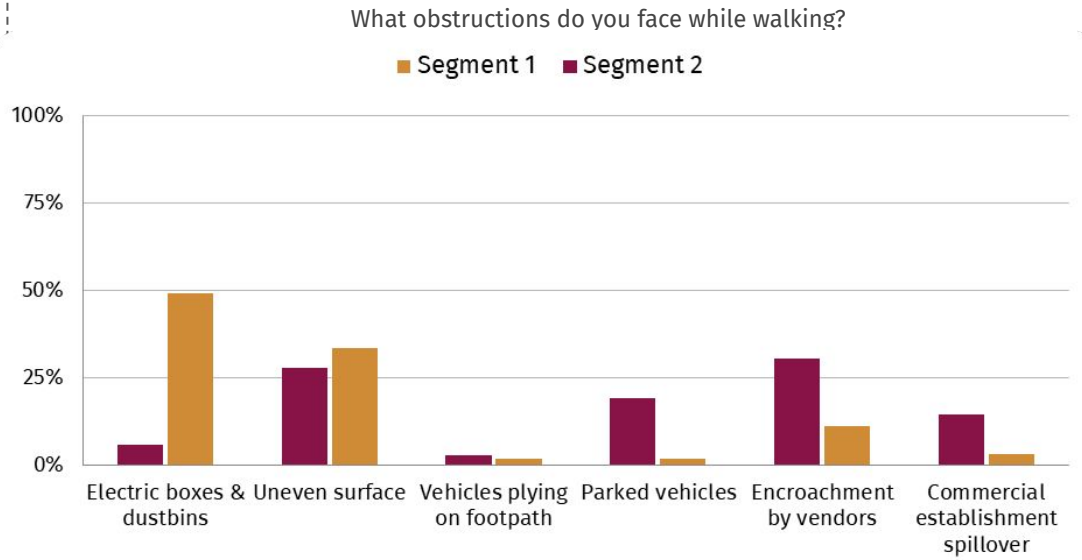
According to users, both segments have insufficient FP width. The malls attract higher footfall in the second segment, further highlighting the inadequacy.



All segments fared LoS D for all indicators of universal accessibility.



Segment 1 is largely unwalkable due to encroachments and uneven surface issues.



Ease of cycling

Recommendations

1. Despite having large number of cyclists, the entire street lacks safe cycling provisions.
2. **Dedicated cycle tracks with cycle lanes** wherever required should be added to ensure safe cyclists' movement as per Bicycle Plan.

Cycle track/lane not present in the entire stretch.

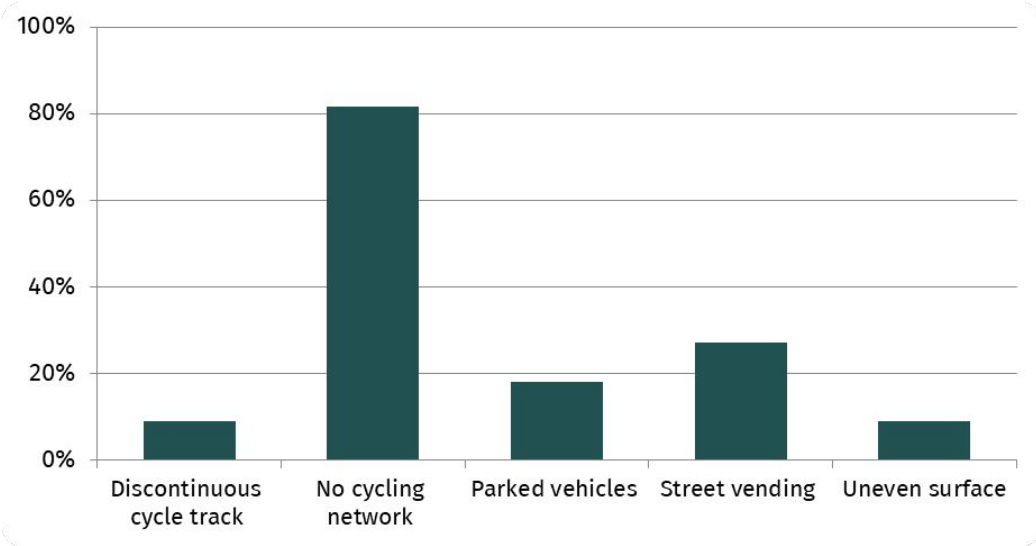
Do you use the cycle track?

Amongst the people interviewed, around 40% will consider cycling for shorter trips, if better cycling infrastructure is provided.

Would you cycle for shorter trips if the right infrastructure is provided?

Lack of cycle track is the biggest deterrent to cycle followed by parked vehicles and encroachment by vendors.

What obstructions do you face while cycling?

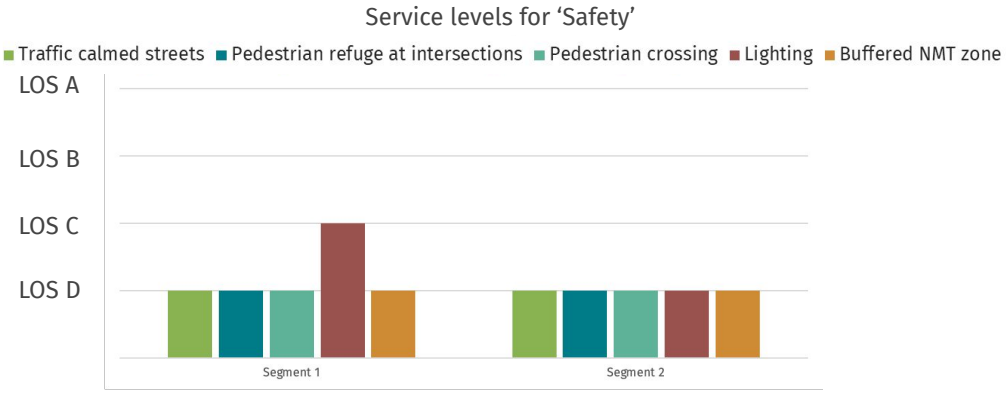


Safety

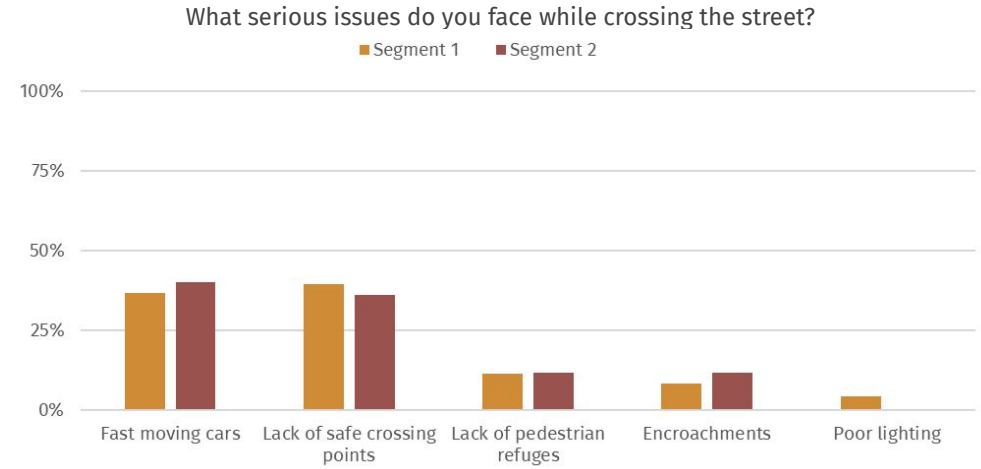
Recommendations

1. Except for the crossing at Amanora mall, no other part of the street has safe crossing infrastructure. Table top junctions with traffic calming measures are required at all junctions, Noble Hospital, and at Township entrances.
2. Heavy vehicle movement poses severe safety threats. This is further amplified by lack of footpaths around the flyover landings. Pedestrian signals, safe waiting spaces at junctions, pedestrian lighting need to be prioritised.

All segments lack severely in design for safety, with a LoS D rating.

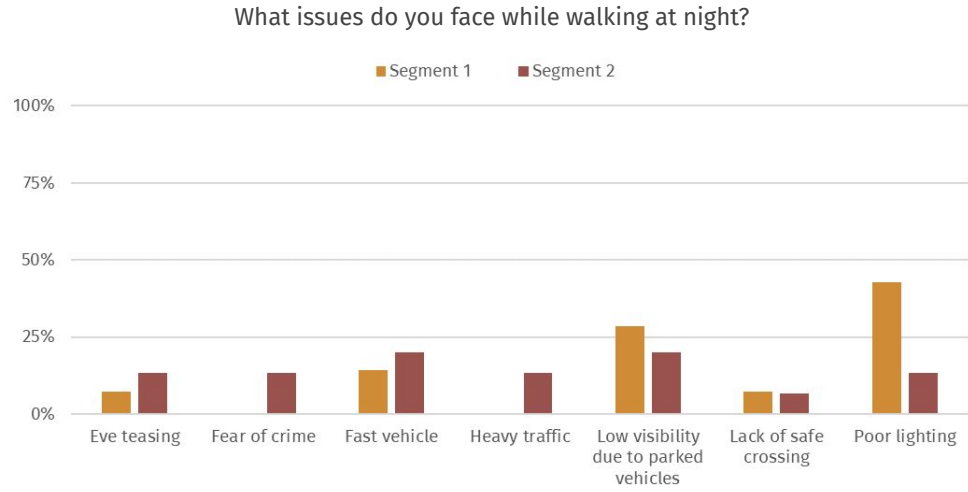


Nearly 40% felt that fast moving vehicles and the lack of crossing points was the major issue faced while crossing.



Of the 5 caregivers surveyed, none of them found the street safe for children to walk unsupervised.

Of the people who had used the street at nights, more than 50% of them felt unsafe at nights due to poor lighting.



3Nagar Road

Design	Observation	Perception
5/10	4/10	4/10

Character: Arterial street with heavy vehicular traffic, and commercial land-use
Right-of-Way: **52-60m**
Selected Length for study: **4.6km**

Street redeveloped in **2017-19**

Street design as per guidelines:
As per Pune USDG: 3 MV lanes and a service lane, with 4.5M clear footpath
As per Pune Bicycle Plan: 2M dedicated cycle lane on both sides.
BRT lane: Yes
Metro: Proposed: Yes
Grade separator: Yes

Another highway within city limits, with a hybrid BRTS and heavy vehicular traffic.

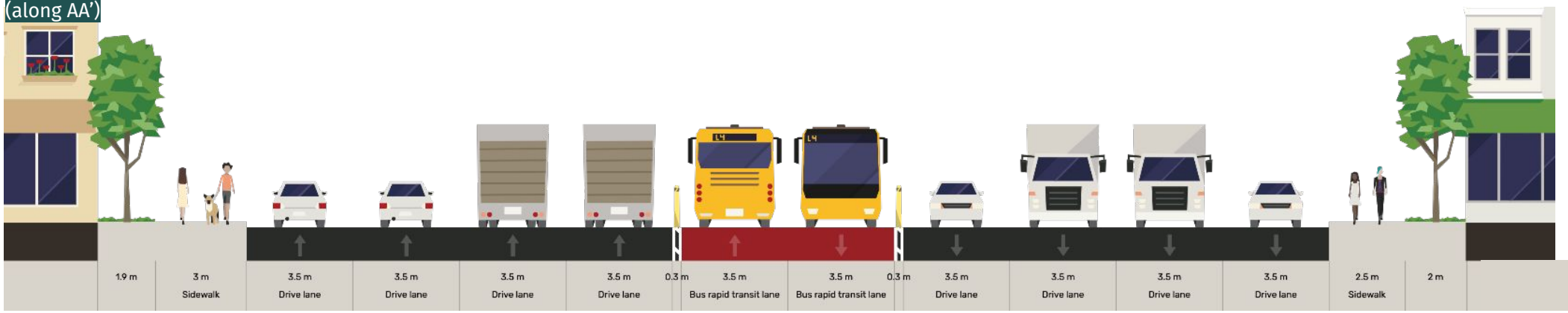
271 respondents
for the perception survey

Female 35%	Male 65%
Residents 35%	Visitors 65%

Volume counts:
Conducted during morning and evening peak hours, for both sides of the roads at **Shastri Chowk.**

						PMP		PVT.		
☀	642	138	4596	7758	1596	60	42	156	210	126
☾	700	240	4260	7200	1560	90	36	210	360	120

Street section
(along AA')




No footpath. Street edge occupied by vehicles.


Very narrow footpaths. No cycle tracks.


Wide footpath and cycle tracks encroached at some places.


Some junctions have railing at footpaths for safety.


Multiple seating spots along the segment 2.


No footpaths.


Wide NMT infra with well-managed parking spaces.

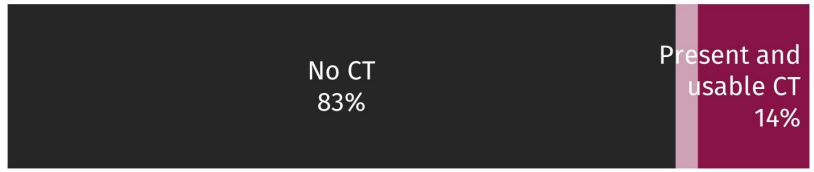

Garbage dumped at multiple locations.

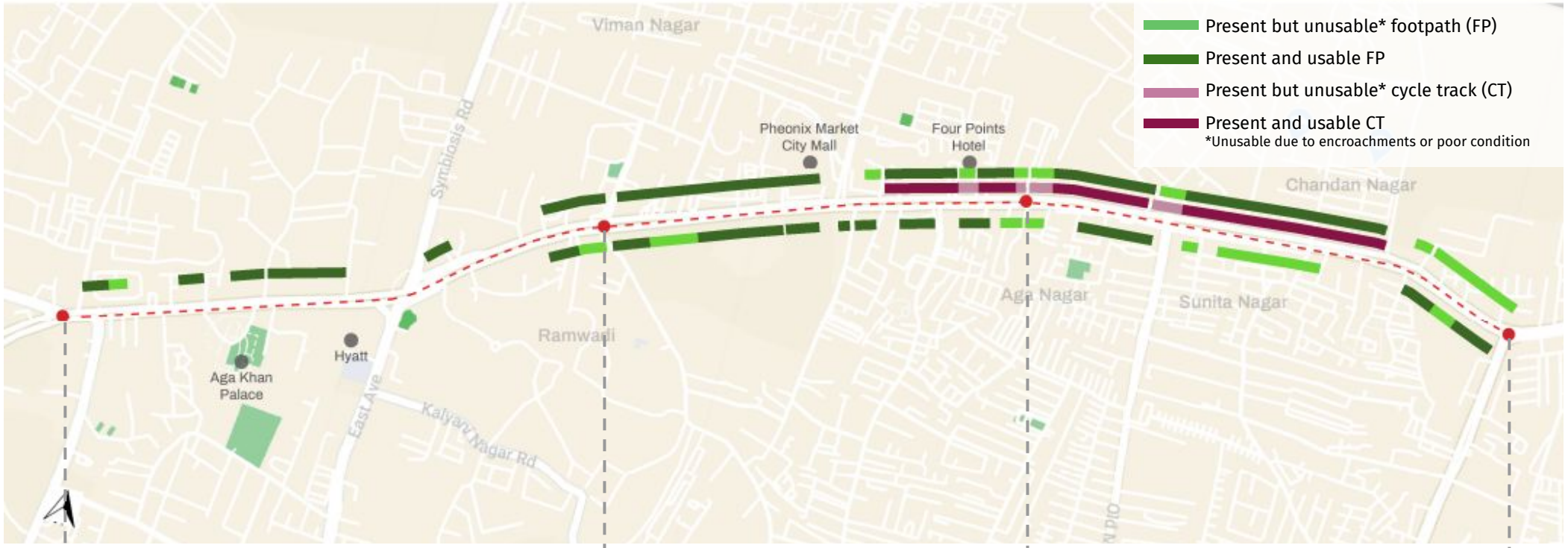

Wide footpaths encouraging a variety of activities.

Observed footpath & cycle track condition along the stretch

More than half of the street lacks adequate walking infrastructure.

Only 1/5th of the street has any provisions for cycling infrastructure.





SEGMENT 1 | **SEGMENT 2** | **SEGMENT 3**

Loop Road Junction — ***Novotel Hotel*** — ***Chandan Nagar BRTS*** — ***Hadapsar Bypass Road***

On & off footpath pedestrian count during morning peak hour, segment-wise

	Segment 1	Segment 2	Segment 3
On FP	450	96	393
Off FP	192	348	174
	642	696	567

**near Shastri Nagar bus stop

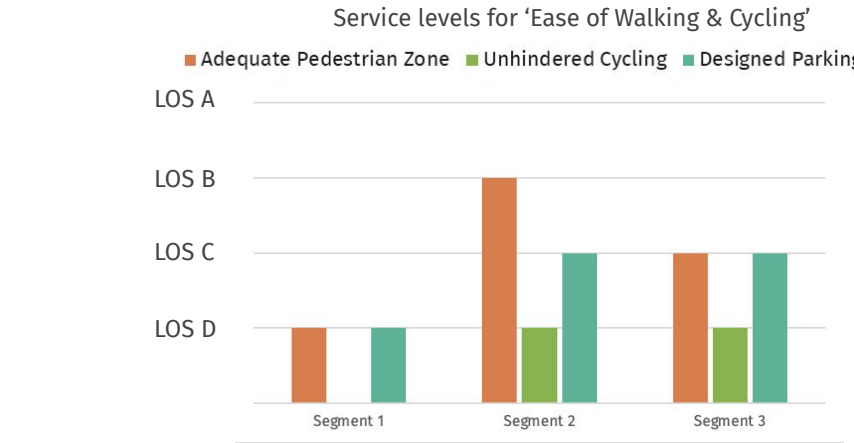
Although FP and CT are provided near Chandan Nagar, the opposite side lacks safe walking spaces.

Ease of walking

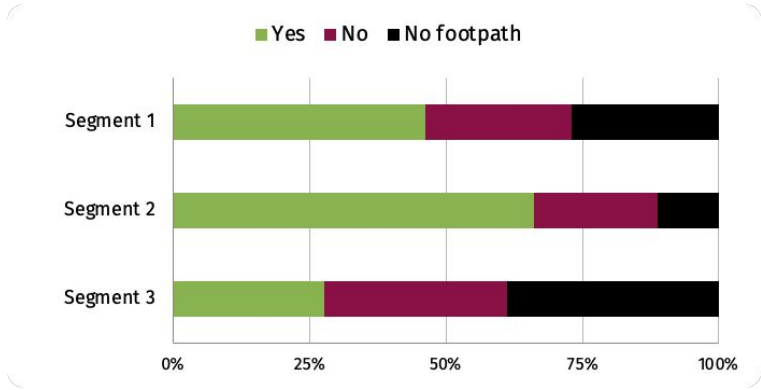
Recommendations

1. Almost 55% of the street has no or unwalkable footpath. Segment 1 (From Loop road chowk to Novotel) needs a **proper redesign and reconstruction** to include pedestrian & cycling facilities.
2. **Encroachment removal and resurfacing** should be done to create a continuous footpath along segment 3 (Opp. Chandan nagar bus stop).

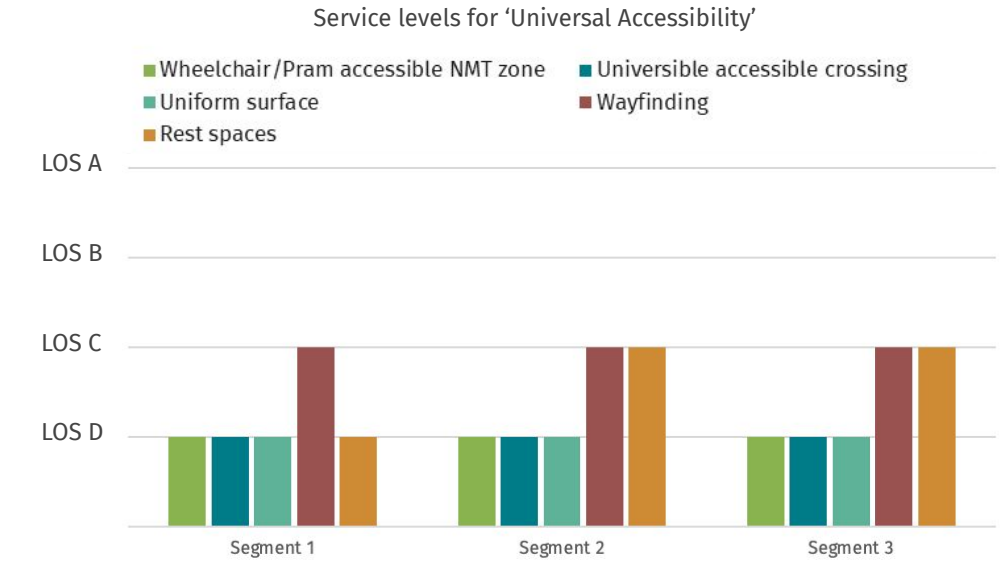
Segment 1 is not designed at all. Segment 2 has better design for walking & cycling as compared to other stretches.



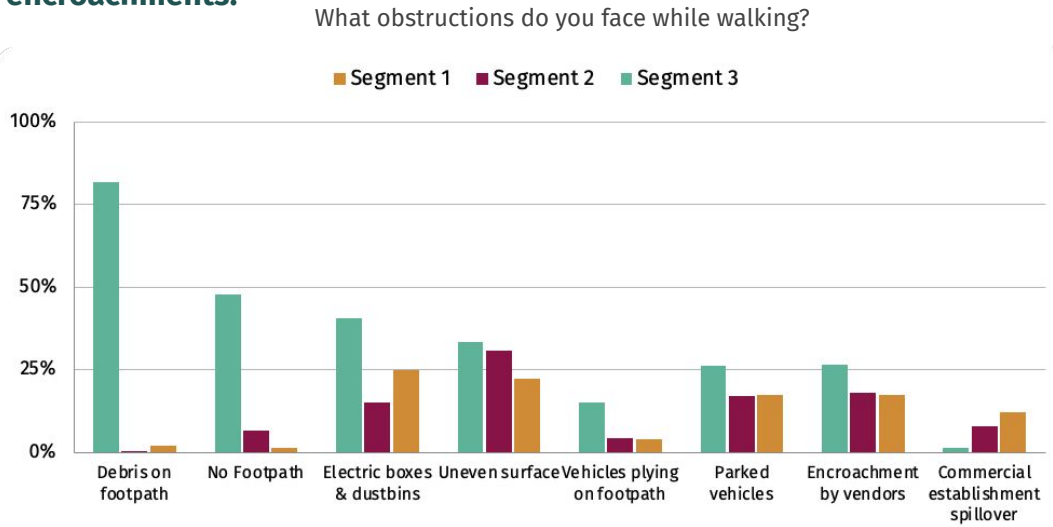
More than 50% of respondents on segment 1 and 3 felt that the footpath width was not adequate.



All segments score poorly in Universal Accessibility.



Segment 1 is mostly unusable due to uneven surface and encroachments. Segment 2 & 3 have utility, commercial and vehicular encroachments.



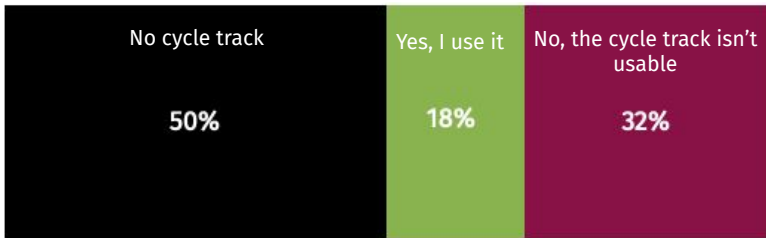
Ease of cycling

Recommendations

1. Only some parts of segments 2 and 3 have provisions for cycling. However, cycle tracks need to be provided along the entire stretch as this corridor has wider RoW that can **easily accommodate CT on both sides.**
2. Wherever cycle track is discontinuous, **redesigning and resurfacing of cycle track should be done.**
3. **Enforcement** to remove encroachments necessary to achieve continuous cycling infrastructure.

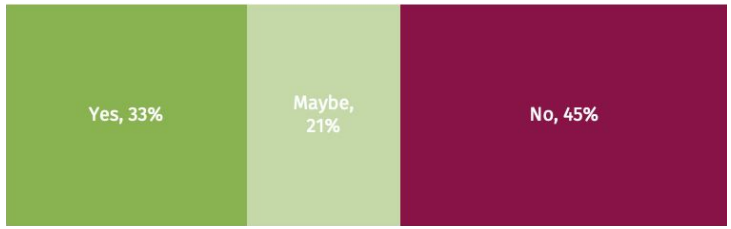
While segment 1 doesn't have any cycling infrastructure, segments 2 & 3 have well designed cycle tracks only towards the Chandan Nagar side of the street.

Do you use the cycle track?



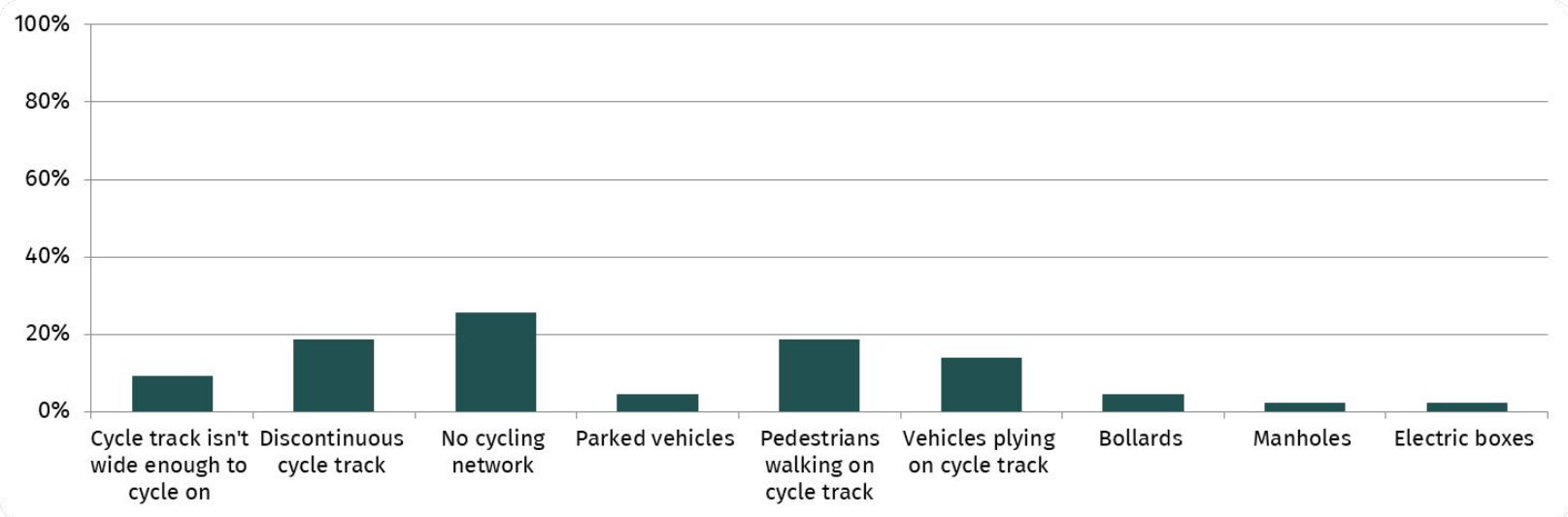
Amongst the people interviewed, more than 50% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?



Absence or discontinuity of cycle track was reported as the major deterrent for cycling.
Apart from this,
hindrances caused by vehicles and pedestrians on CT was cited as another major obstruction in cycling.

What obstructions do you face while cycling?

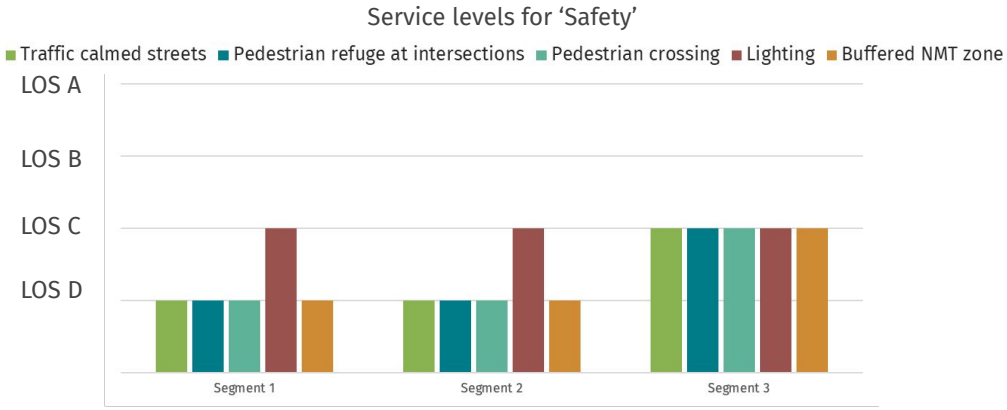


Safety

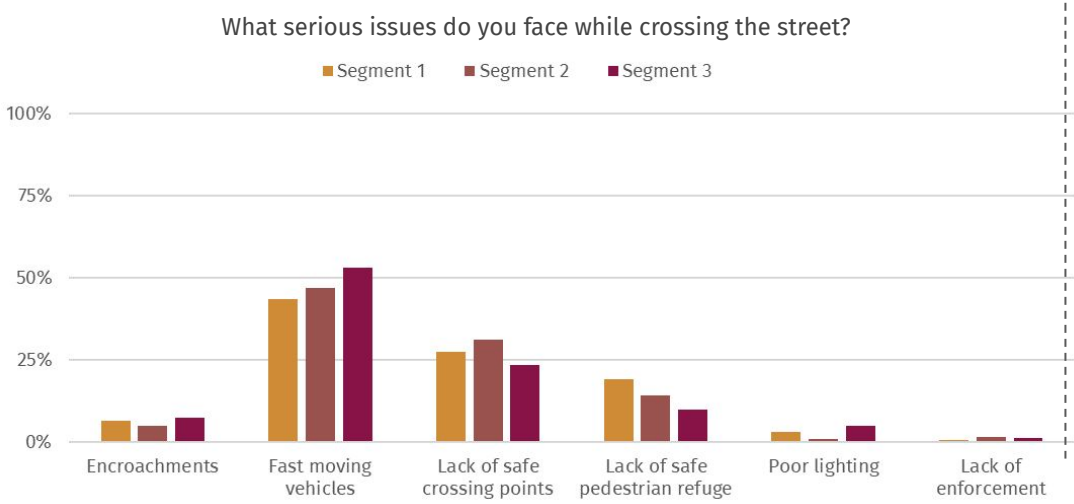
Recommendations

1. Corridor has trucks, buses and high volume 4w movement making it extremely risky for pedestrians to walk without footpaths. **Midblock crossing with tabletop at every 200m should be provided.**
2. The street has large junctions without safe waiting spaces creating accident-prone spots.
3. **Working signals with traffic wardens and pedestrians phase** need to be provided at every junction.

Segment 3 fared better than other two segments in terms of safety. Segment 1 and 2 need to be designed better for safety and crossing.

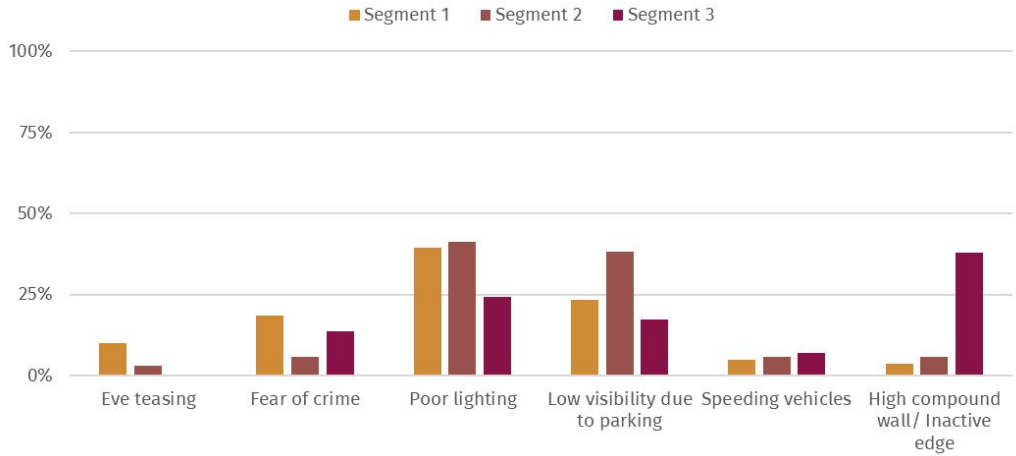


Nearly 80% felt that fast moving vehicles was a serious issue. People also highlighted the lack of safe crossing points and pedestrian refuge as major concerns.



Out of the total caregivers surveyed, nearly 90% did not find the street safe for children to walk unsupervised.

Of the people who had used the street at nights, more than 50% of them felt unsafe at nights due to poor lighting. 1 in 4 of the respondents faced low visibility due to parked vehicles, and high compound walls, especially near institutional land-use.



4 Vishrantwadi Road

Design	Observation	Perception
3/10	2.5/10	2.5/10

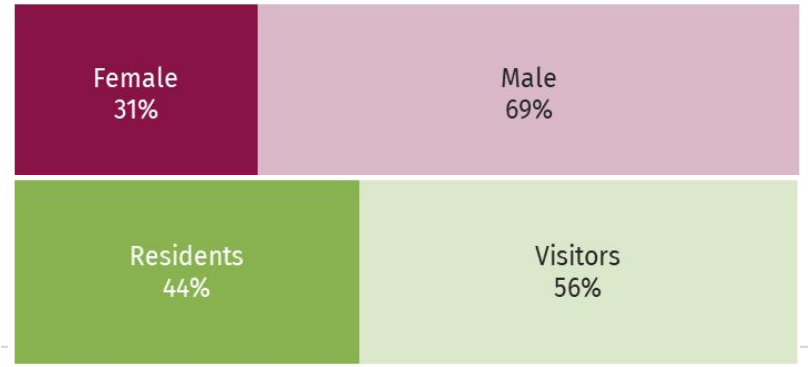
Character: Sub-arterial street with institutional and mixed land-use
Right-of-Way: **30m**
Selected Length for study: **2.2km**

Street redeveloped partially in **2019**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with 3M wide clear footpath
As per Pune Bicycle Plan: 2M dedicated cycle track on both sides
BRT lane: No
Metro: Proposed: No
Grade separator: No

The street has a BRT terminal in segment 1 and leads to Pune airport. There are a lot of vacant plots along the stretch.

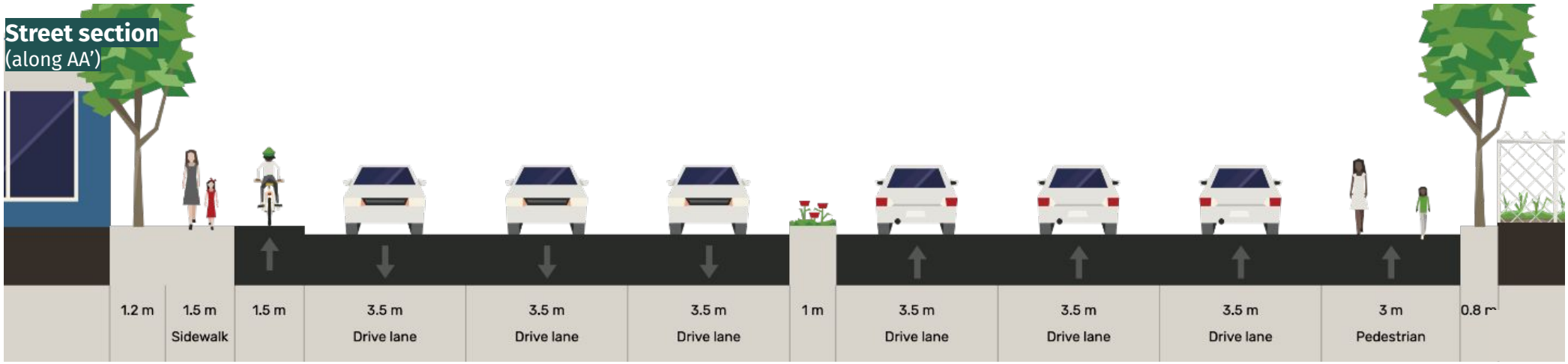
242 respondents
for the perception survey



Volume counts:
Conducted during ☀ morning and ☾ evening peak hours, for both sides of the roads at **Vishrantwadi bus terminal.**

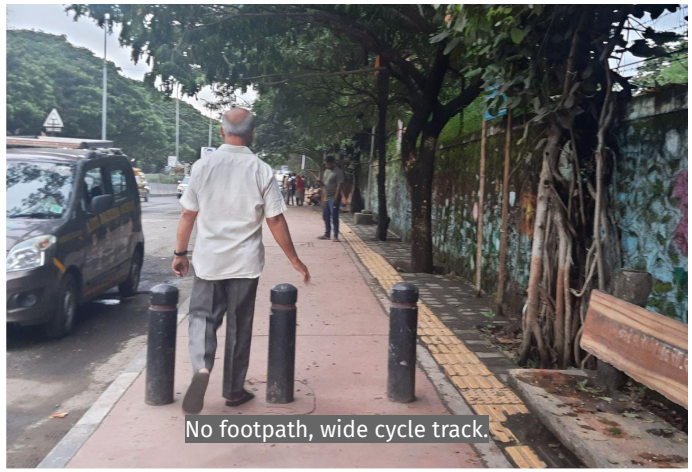
☀	878	24	1218	3990	372	78	6	30	120	78
☾	1016	32	1800	3906	486	102	6	66	192	48

Street section
(along AA')




Wide footpath and cycle tracks.

Uneven surface.


No footpath, wide cycle track.


No footpath provision.

Encroached footpath and cycle track.


No footpath provision.


Shaded footpath.

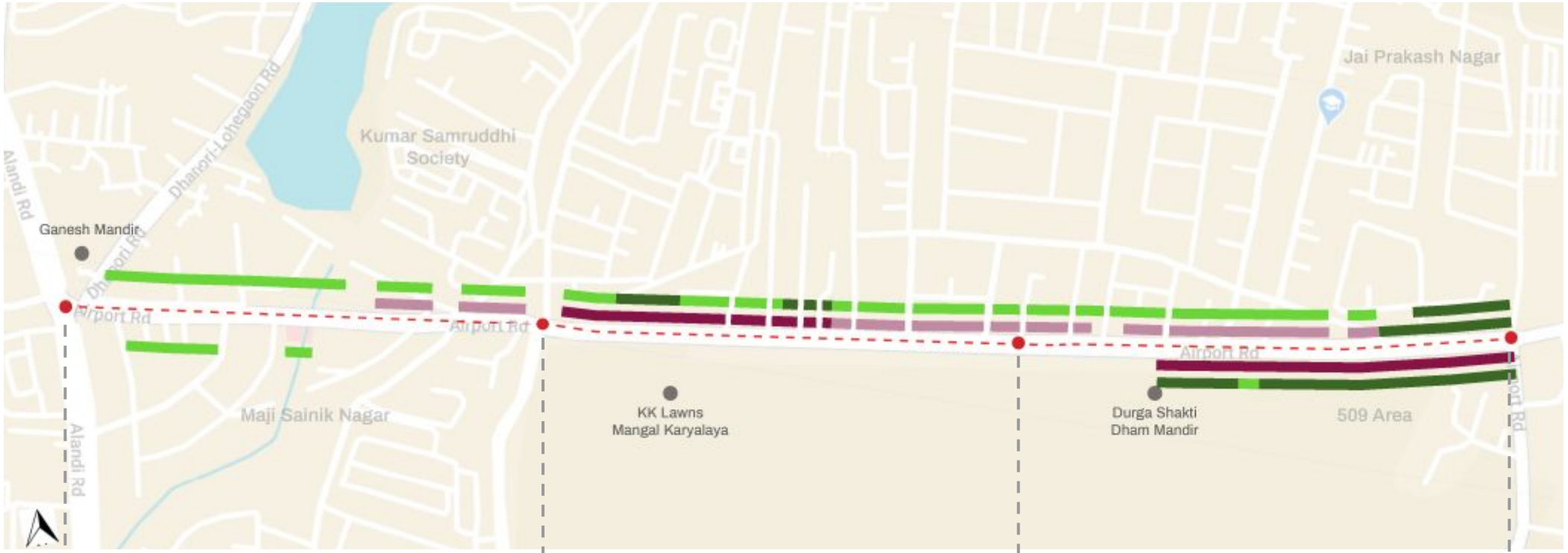

No footpath, uneven surface, encroachment.

Vending on cycle tracks.

Observed footpath & cycle track condition along the stretch

More than 3/4th of the street lacks adequate walking infrastructure

More than half of the street lacks adequate cycling instructure



Around 97% of the pedestrians did not have access to footpaths!

	SEGMENT 1	SEGMENT 2	SEGMENT 3
On FP	28	240	96
Off FP	850	312	150
	878	552	246

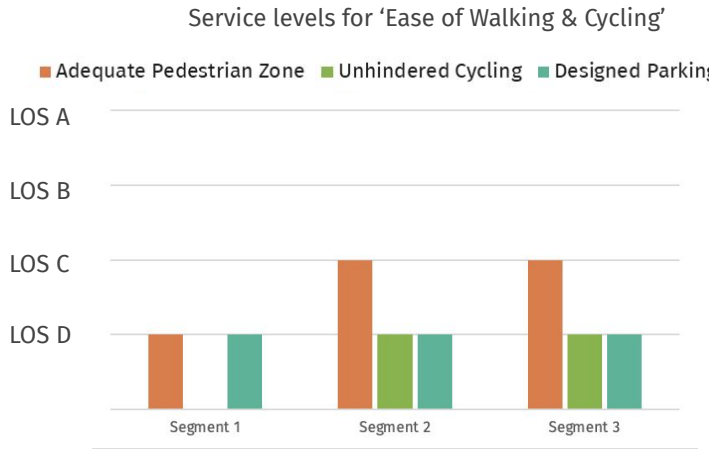
On & off footpath pedestrian counts during morning peak hour, segment-wise

Ease of walking

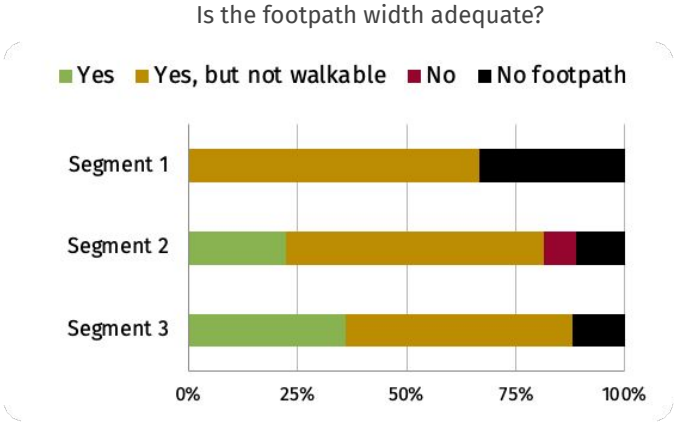
Recommendations

1. Segment 3 (towards airport) has recently created NMT infrastructure. **Similarly, the entire stretch needs to be designed with wide footpath and continuous cycle track.**
2. Entire footpath needs **resurfacing, currently it is uneven and poorly maintained.**

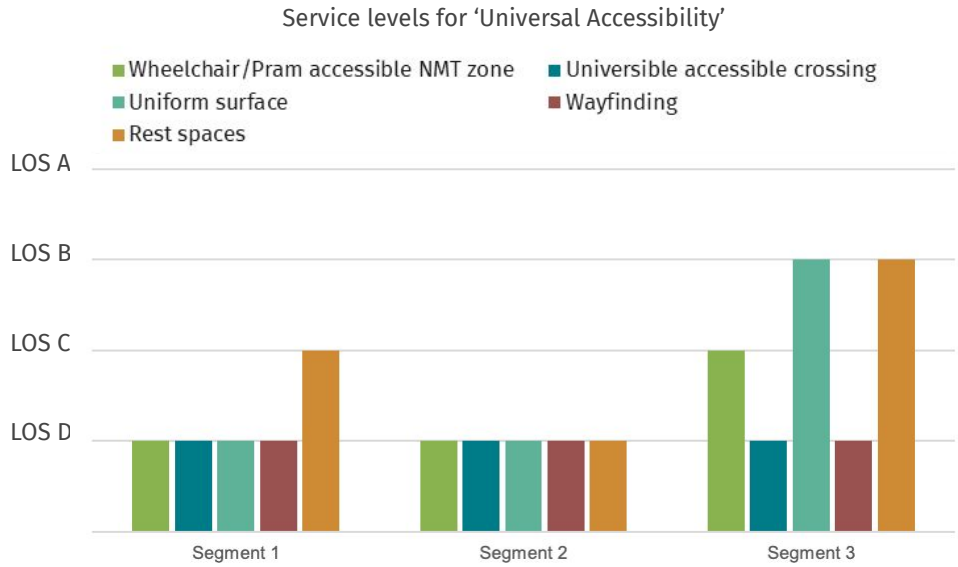
All segments are poor in walking, cycling & parking infrastructure.



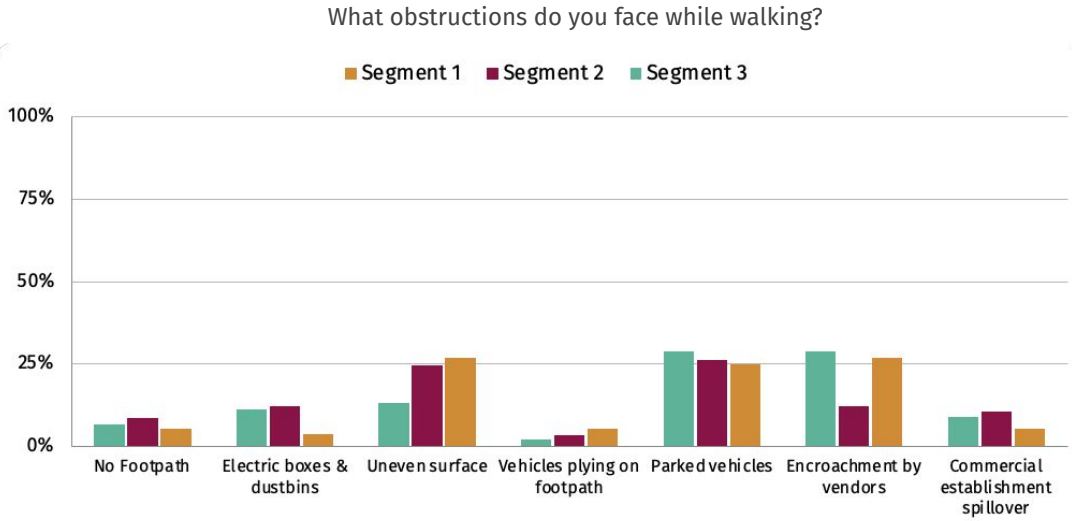
Around 30% respondents of segments 3 felt the footpath is walkable. For other segments the street is largely unwalkable.



Segment 1 & 2 lack severely in accessible infrastructure. Segment 3 is designed better with rest spaces and uniform surface.



Poor surface quality and encroachment has been highlighted as the prime deterrents to walking on footpath.



Ease of cycling

Recommendations

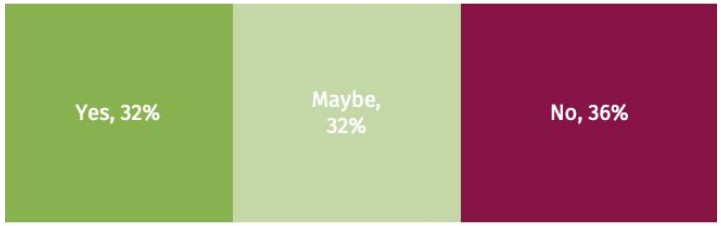
1. Cycle track has been provided segment 2 onwards. But the uneven surface and lack of continuity discourages cyclists.
2. There is an urgent need to create both walking and cycling infrastructure on the KK lawns side stretch in segment 1 nad 2.

Segment 1 does not have a cycle track. Other segments have either discontinuous or encroached cycle track, rendering the whole stretch unusable.

Do you use the cycle track?

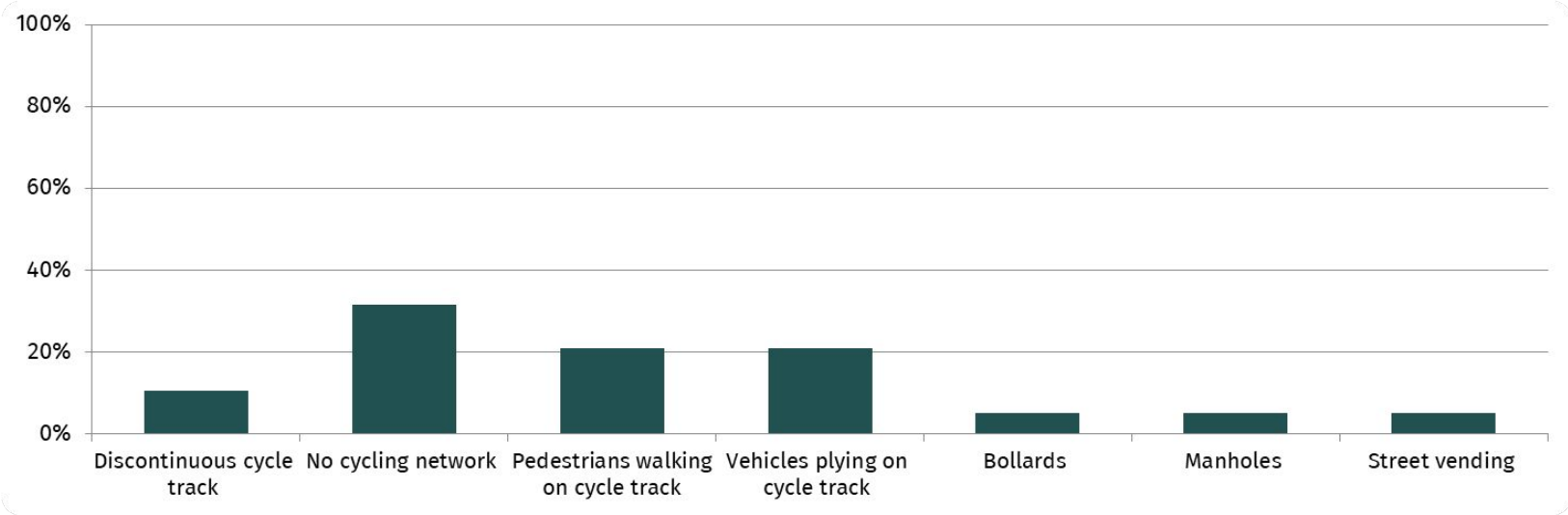
Amongst the people interviewed, around 65% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?



Absence of cycling infrastructure was a major deterrent. Encroachment by pedestrians and vehicles were also highlighted .

What obstructions do you face while cycling?

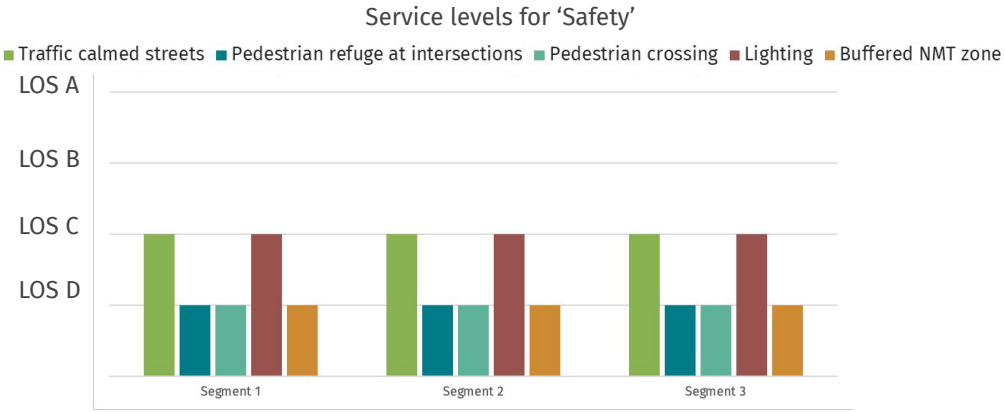


Safety

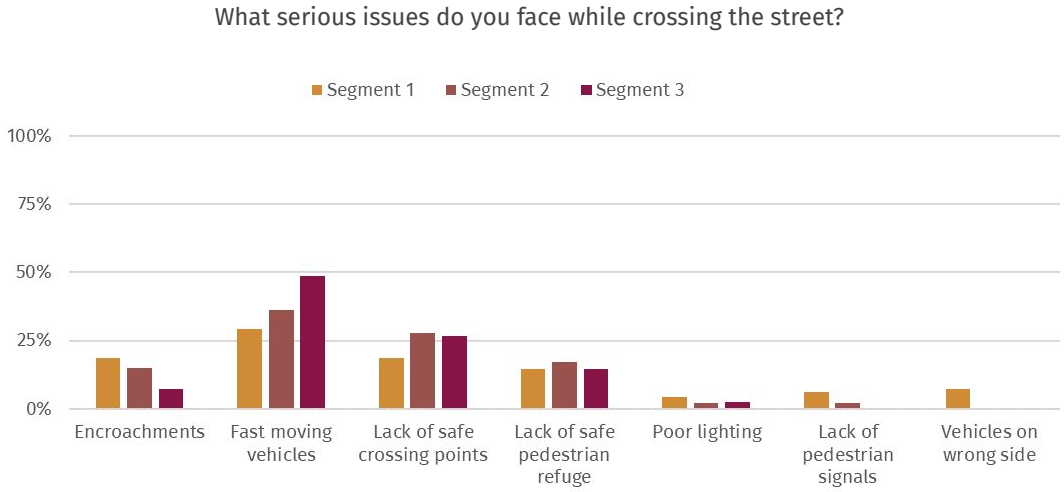
Recommendations

1. Since the stretch has adjoining **vacant plots and poor lighting,** the street feels very unsafe to walk in the night. **Pedestrian light** need to be provided.
2. **Traffic calming and safe crossing** need to be added.

All segments lack in safe crossing infrastructure and safe NMT zone.

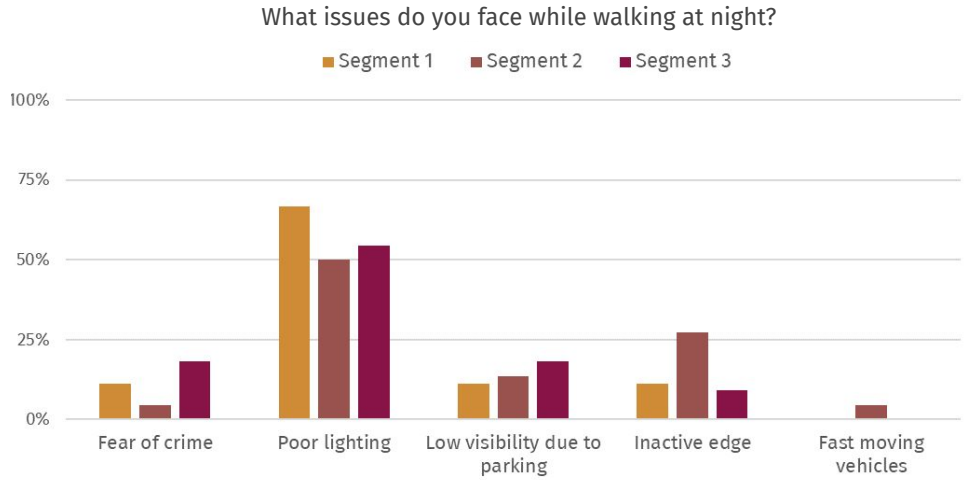


Nearly 50% felt that fast moving vehicles and lack of safe crossing infrastructure was a serious issue.



Of the caregivers surveyed, nearly 80% did not find the street safe for children to walk unsupervised.

Of the people who had used the street at nights, more than 50% of them felt unsafe at nights due to poor lighting.
1 in 4 of the respondents had concerns about low visibility & inactive edges.



5 Raj Bhavan Road

Design	Observation	Perception
6/10	7.5/10	7.5/10

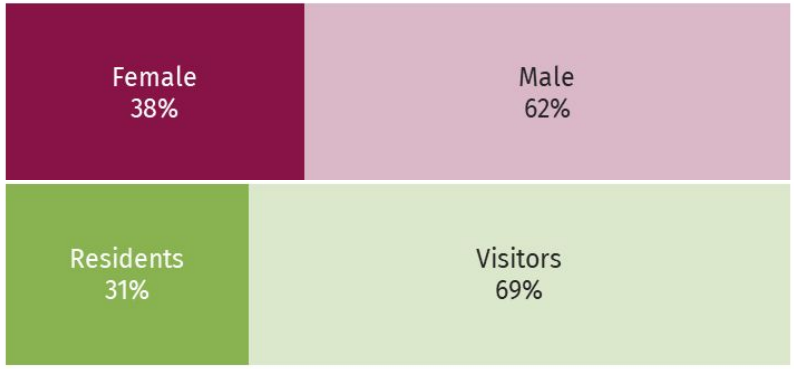
Character: Arterial street with institutional land-use.
Right-of-Way: **30m**
Selected Length for study: **3.3km**

Street redeveloped in **2015**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with 3M wide clear footpath
As per Pune Bicycle Plan: 2M dedicated cycle track on both sides
BRT lane: No
Metro: Proposed: No
Grade separator: No

One of the main roads connecting Pimpri-Chinchwad city to Pune.

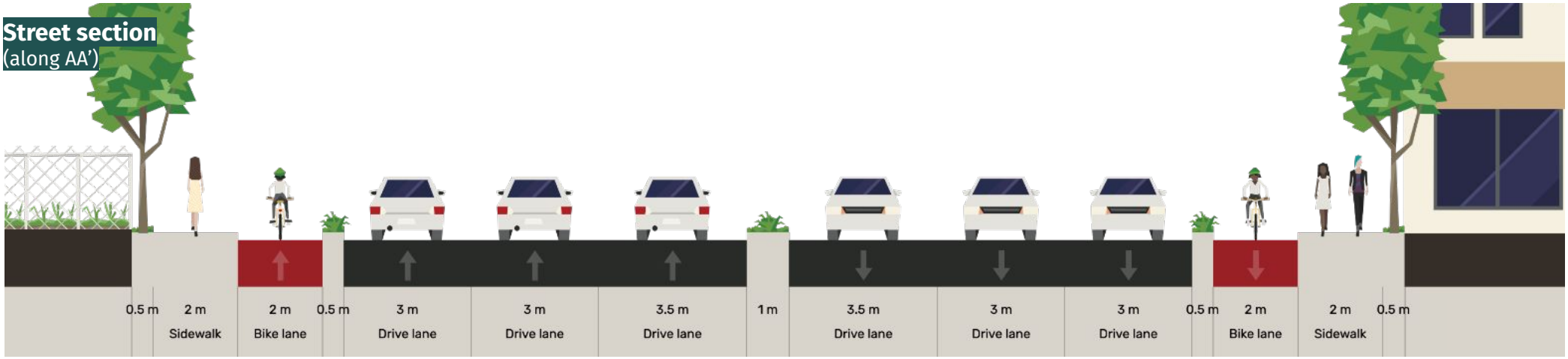
167 respondents
for the perception survey



Volume counts:
Conducted during morning and evening peak hours, for both sides of the roads at **Bremen Chowk bus stop.**

	212	16	1748	5116	960	104	12	28	272	76
	830	66	2256	5454	876	66	0	12	204	6

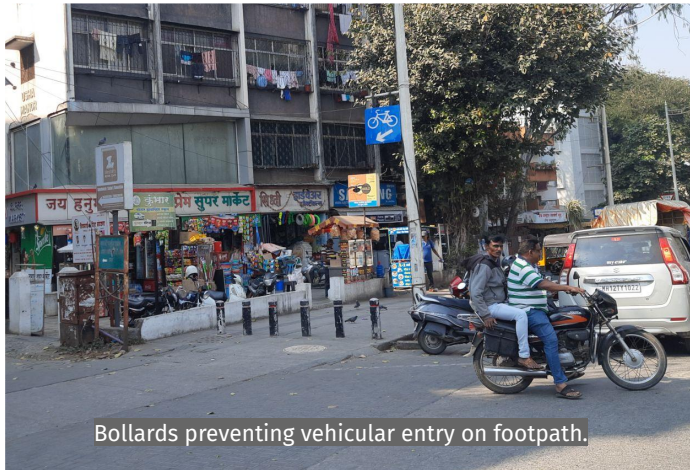
Street section
(along AA')



2w parking on footpath


Pedestrians on cycle tracks.


Cycles parked near school


Bollards preventing vehicular entry on footpath.


Shaded footpaths.


Parking on cycle track and footpaths

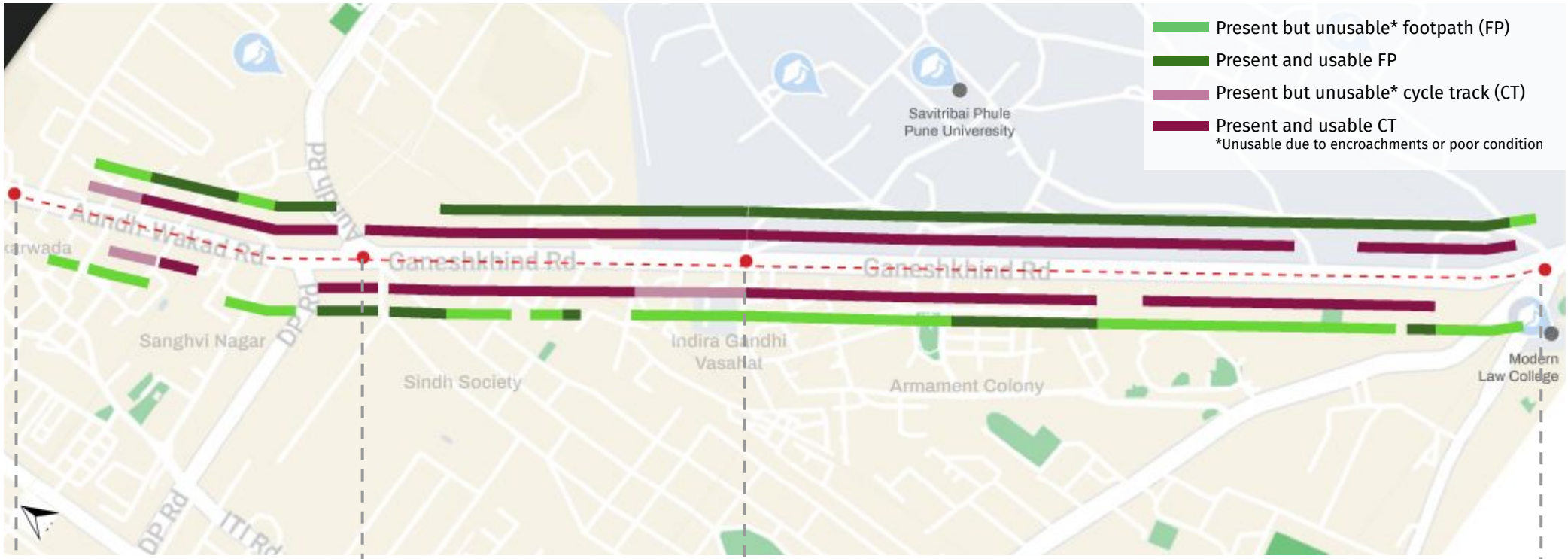

Shaded seating spaces.

Poor access to bus stop towards Rajiv Gandhi bridge.

Observed footpath & cycle track condition along the stretch

Although 85% of the road has footpath, only 50% of it is usable due to obstructions and encroachments.

Around 2/3rd of the road has wide usable cycle tracks



SEGMENT 3 | **SEGMENT 2** | **SEGMENT 1**

Rajiv Gandhi Bridge — ***Bremen Chowk*** — ***Kasturba Vasahat*** — ***University Junction***

On & off footpath pedestrian count during morning peak hour, segment-wise

	SEGMENT 3	SEGMENT 2	SEGMENT 1
On FP	210	184	272
Off FP	54	28	92
	264	212	364

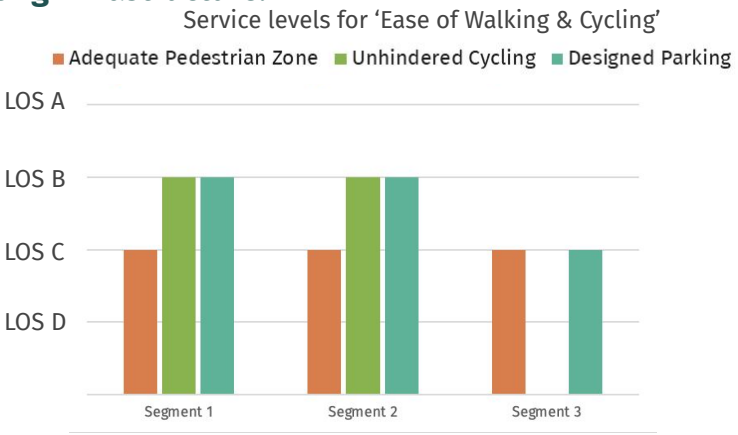
The stretch from University junction to Raj Bhavan has very narrow footpath resulting in 25% of the people walking OFF the footpath.

Ease of walking

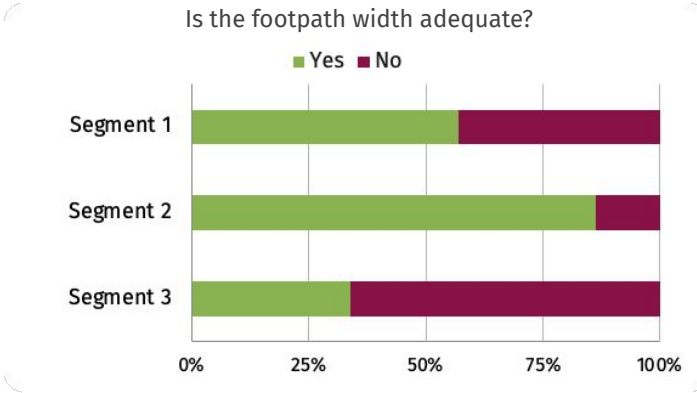
Recommendations

1. Wider footpath and CT needed near University junction.
2. Segment 3 needs footpath resurfacing and redesign to maintain pedestrian continuity. Wide footpath only available around PMRDA office.
3. Segment 2 (near Indira Vasahat) needs enforcement to remove encroachment on the NMT zone along with footpath resurfacing.

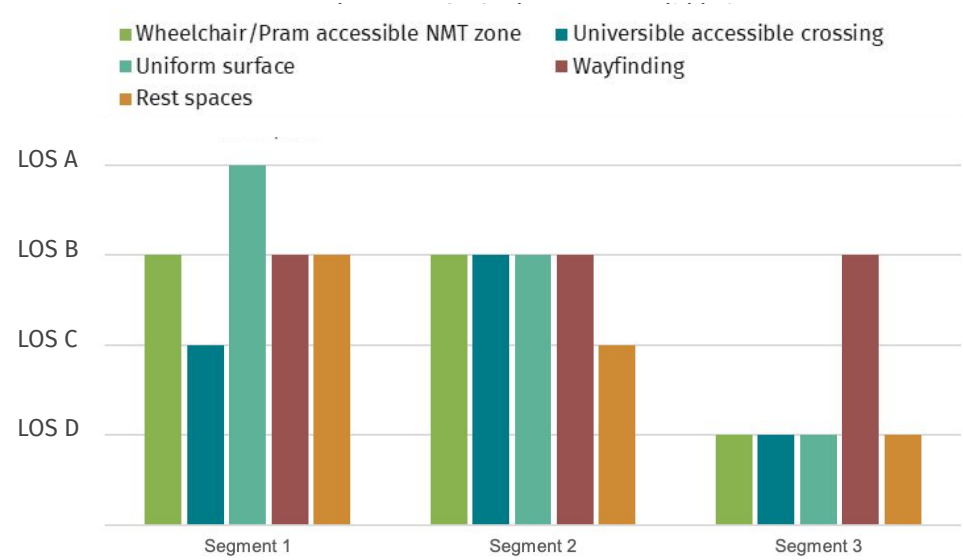
Segment 1 and 2 have wide footpath and cycle track in most of the stretch except few obstructions and encroachment. Segment 3 needs cycling infrastructure.



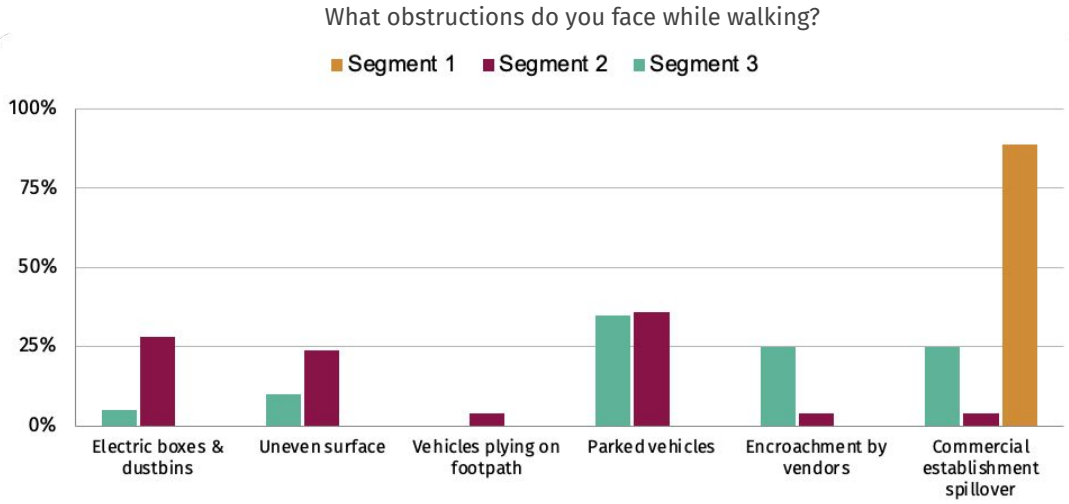
Despite continuous footpath in most segment 1, it is not walkable at many points due to obstructions. More than 70% of segment 3 respondents felt that the footpath width was not adequate.



Segment 1 & 2 have fairly adequate accessible infrastructure. Segment 3 needs design interventions to improve.



Encroachment by vehicles and commercial uses was highlighted as a major deterrent to cycling, especially near Kasturba Vasahat and the along segment 3.



Ease of cycling

Recommendations

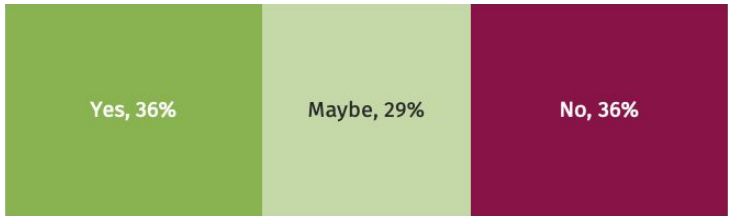
1. Pedestrian zone should be made obstacle free and resurfaced, to make pedestrian walk on footpath, and clear cycle track for cyclists.
2. Segment 3 (beyond Bremen chowk) needs to be redesigned with wider footpaths and continuous cycle track.
3. Enforcement needed near Indira Vasahat to remove encroachment.

Cycling infrastructure is adequate (on segment 1 & 2), and only 14% of respondents say the track isn't usable.

Do you use the cycle track?

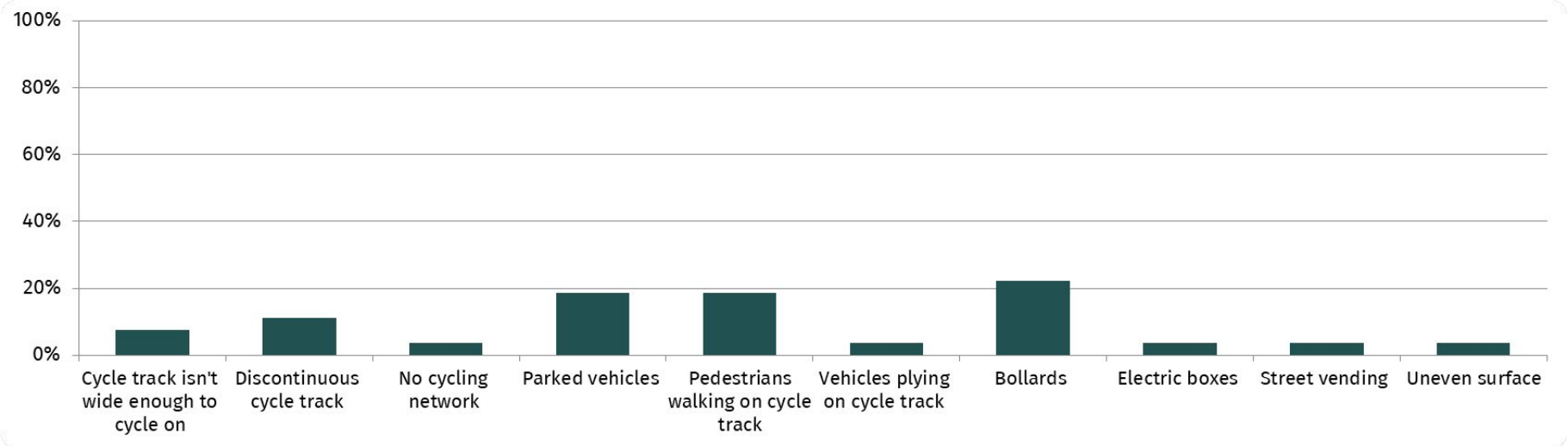
Amongst the people interviewed, around 65% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?



Amongst the respondents who flagged problems, more than 40% of them felt that they were hindered by vehicles & pedestrians walking on cycle track. 1 in 5 said closely spaced bollards are a major deterrent.

What obstructions do you face while cycling?

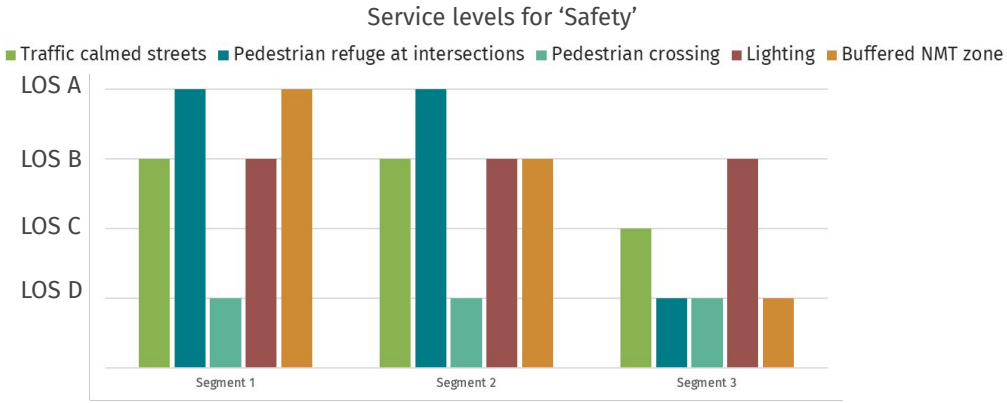


Safety

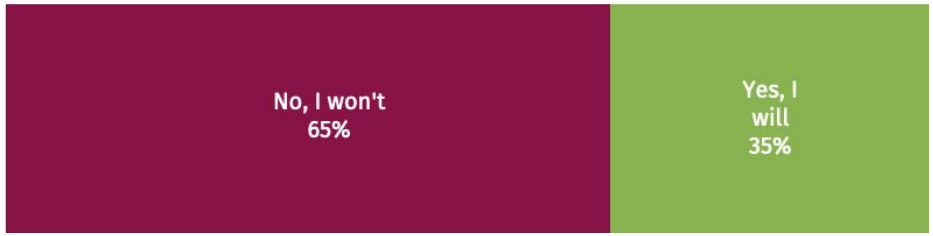
Recommendations

1. Tabletop crossing currently do not connect the footpaths leaving a gap in between for stormwater. But this becomes an universal accessibility issue.
2. Large crowd at bus stops near Raj Bhavan, wide footpath with bulbout to accommodate the pedestrians.
3. Traffic calming like rumble strips required, especially in Segment 1 & 2 along with Zebra crossing re-painting.
4. Pedestrian signals with appropriate signal phasing at all major junctions.

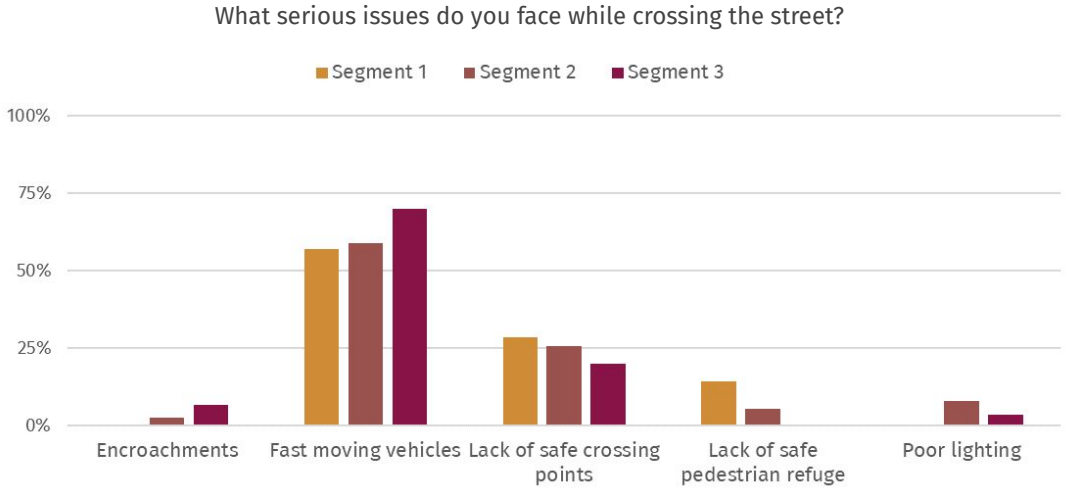
All segments fared LOS D in terms of traffic calmed streets, pedestrian crossing, and pedestrian refuges at intersections. Lighting was LOS C is all segments.



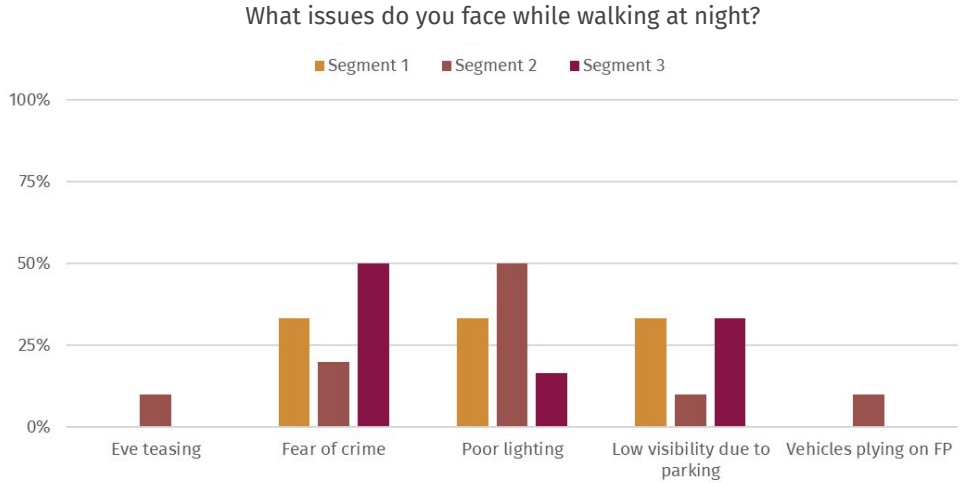
Of the caregivers surveyed, nearly 65% did not find the street safe for children to walk unsupervised.



Nearly 80% felt that fast moving vehicles along with the lack of safe crossing infrastructure was a serious issue.



Of the people who had used the street at nights, more than 50% of them felt unsafe at nights due to poor lighting.
1 in 4 of the respondents faced low visibility due to parked vehicles.



6 Pashan Road

Design	Observation	Perception
3.5/10	5/10	4/10

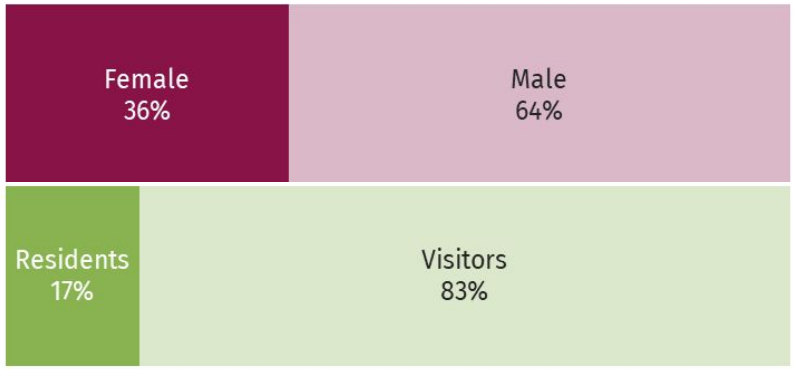
Character: Sub-arterial street with institutional/defense land-use
Right-of-Way: **24m**
Selected Length for study: **2.3km**

Street redeveloped in **2021**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with 2.5M clear footpath
As per Pune Bicycle Plan: 2M cycle segregated cycle track on both sides
BRT lane: No
Metro: Proposed: No
Grade separator: No

Traffic rerouting due to ongoing metro work, partial road one-way. The street passes through multiple governmental and educational institutions.

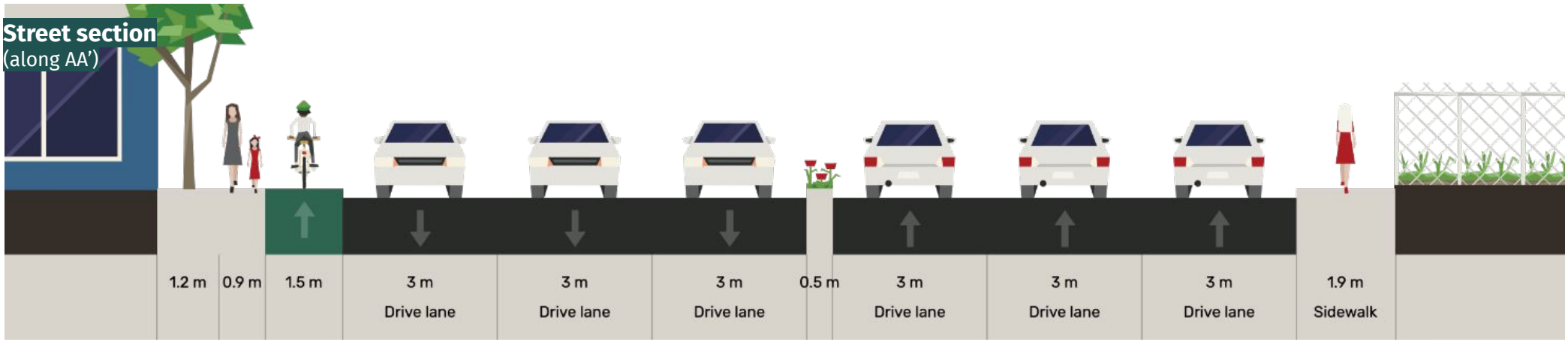
252 respondents
for the perception survey



Volume counts:
Conducted during ☀ morning and ☾ evening peak hours, for both sides of the roads at **Modern high school.**

☀	1264	28	1160	3840	364	16	4	4	68	32
☾	328	20	2128	3200	520	24	60	12	108	0

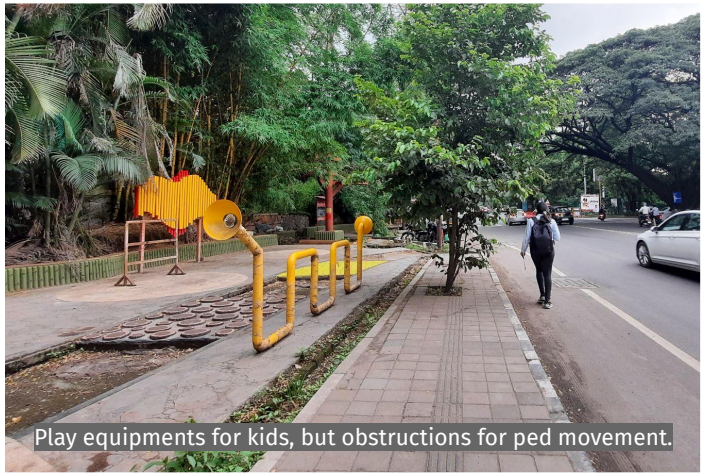
Street section
(along AA')




Electrical boxes blocking footpaths.


Inadequate footpaths around tree pits.


Cycle tracks blocked by vehicles.


Play equipments for kids, but obstructions for ped movement.


Inadequate waiting and walking spaces.


Perpendicular parked Vehicles reducing walkability.


Debris and materials on footpaths.

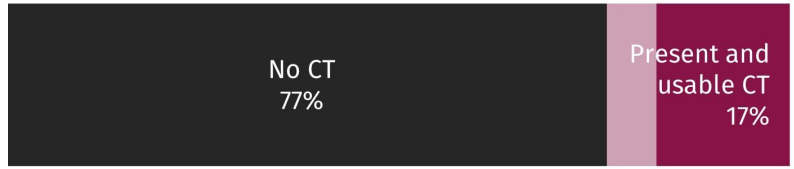

Poor condition, inadequate width.

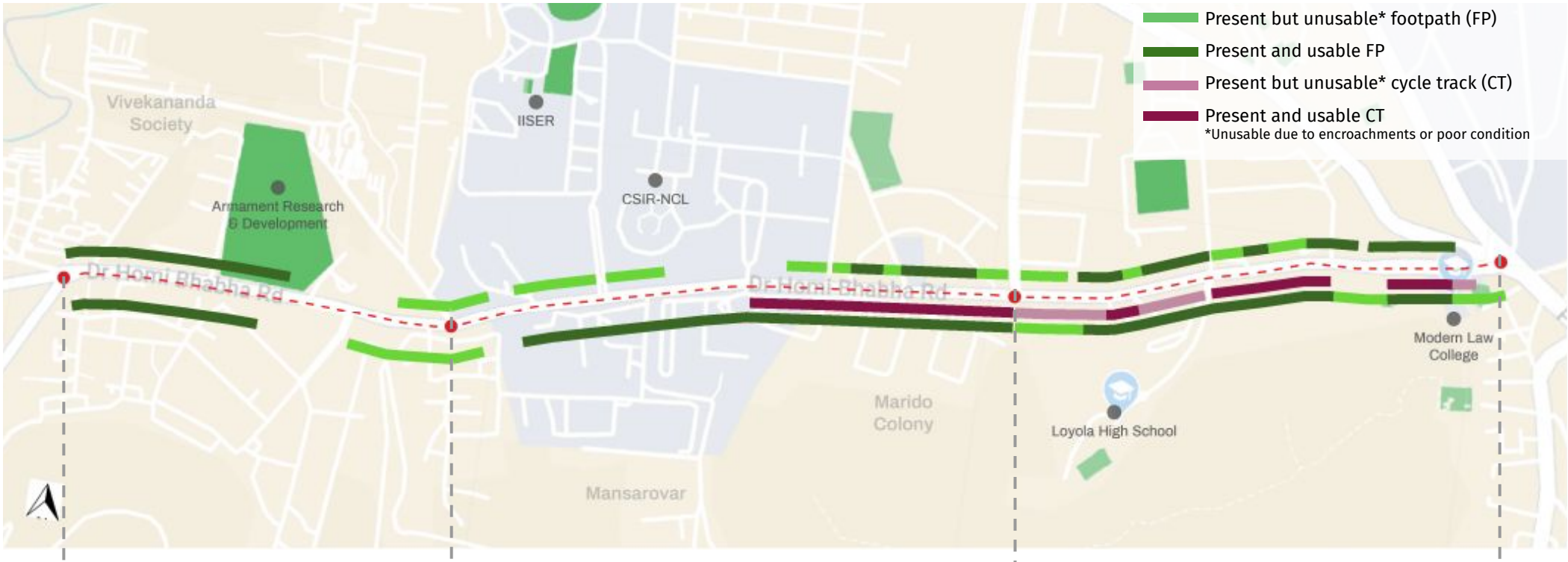

Unusable cycle lanes.

Observed footpath & cycle track condition along the stretch

% split of footpath (FP) condition

Nearly 4/5th of the street lacks cycling infrastructre





SEGMENT 3 | **SEGMENT 2** | **SEGMENT 1**

Pashan Circle — ***Baner Phata*** — ***Abhimanshree Society*** — ***University Junction***

On & off footpath pedestrian count during morning peak hour, segment-wise

	Segment 3	Segment 2	Segment 1
On FP	NA	24	40
Off FP	NA	48	1224
		72	1264

**Footpath near Modern college under construction

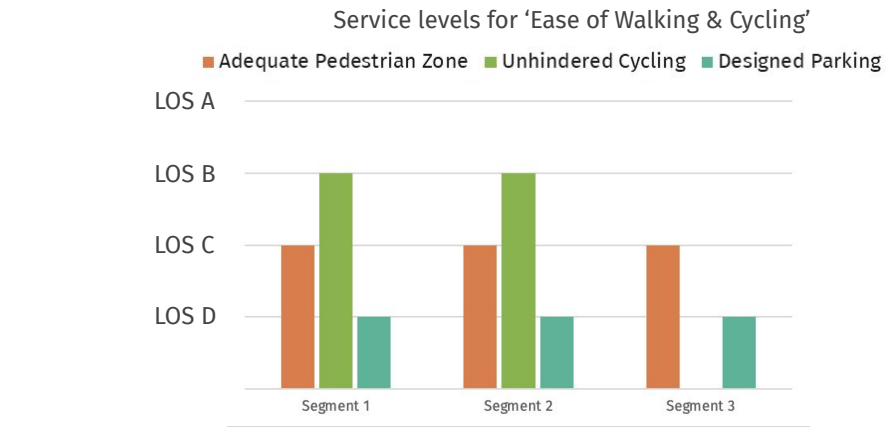
Modern college bus stop has high footfall during college hours.

Ease of walking

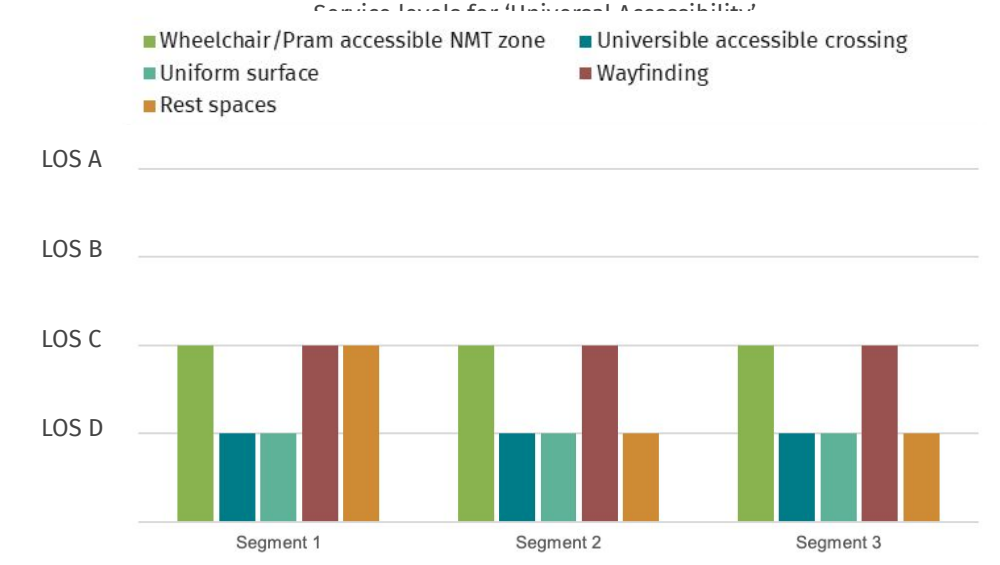
Recommendations

1. Stretch from Abhimanshree to ARD has poor walking and cycling infra. The RoW changes at the bridges and points and the carriageway should be streamlined with footpath and cycle tracks.
2. Footpath near Loyala School and CID office has large trees blocking the footpaths resulting in people walking on cycle tracks. Footpaths should be widened around trees to accommodate the pedestrian movement.

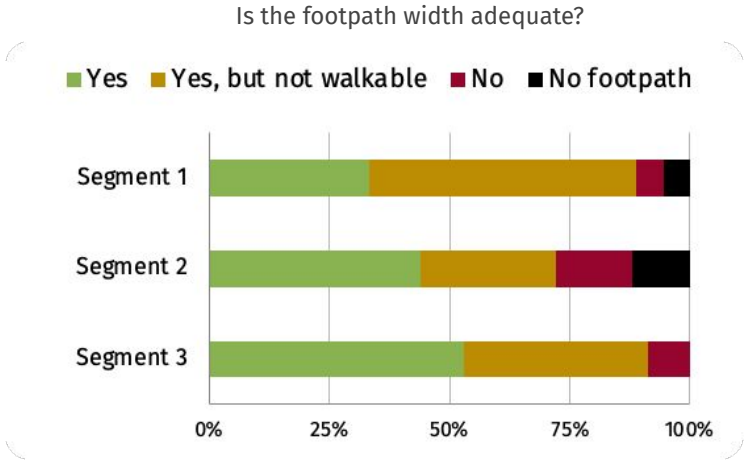
Segment 1 and 2 have at least 50% of the stretch having good footpath and at least 75% of the stretch having good cycle track.



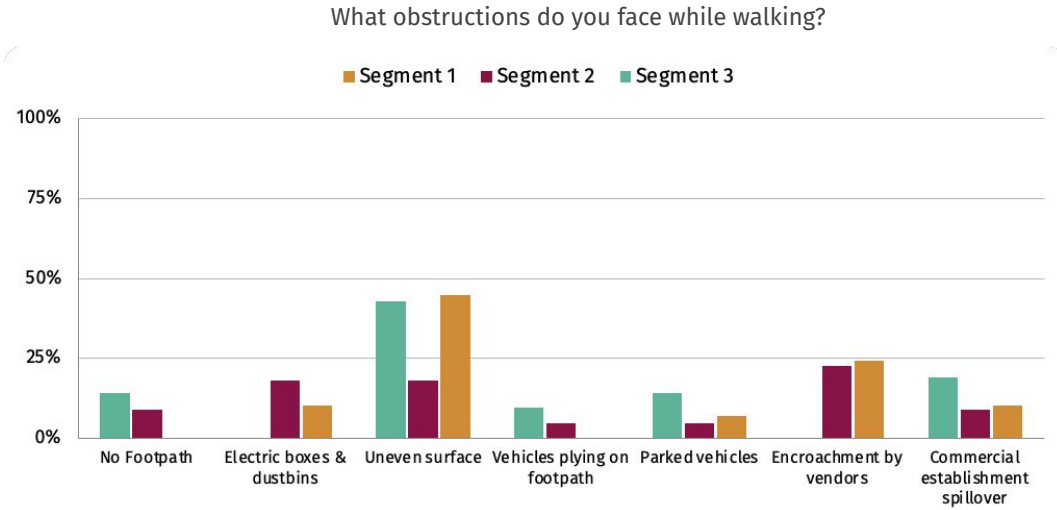
All segment lack considerably in providing UA surface & crossing. Seaters need to be provided on all segments.



More than 50% of the respondents say the footpath isn't adequate for walking



Uneven surface and encroachments, have been identified as deterrents to walking on all segments.



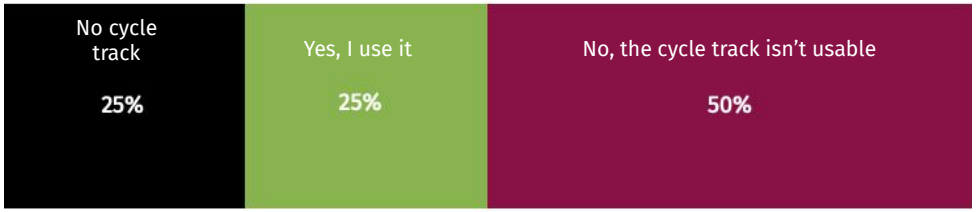
Ease of cycling

Recommendations

1. The cycle track is only provided near modern college and some stretch near Loyala school, it merges into painted cycle lanes at the shoulder of the street. As there are multiple institutions on the road and the street also connects the green spaces- a dedicated continuous cycle track needs to be provided as per the USD guidelines.

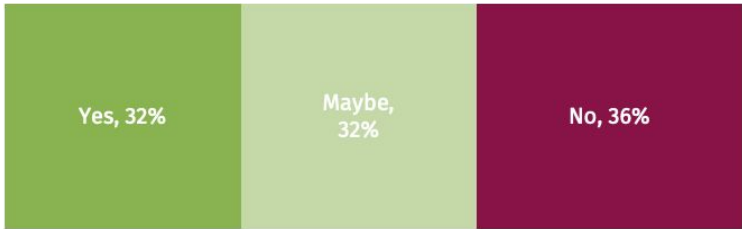
Segment 1 & partly 2 has a segregated cycle track. Segment 3 doesn't have one. The present cycle track was rendered mostly unusable due to various encroachments.

Do you use the cycle track?



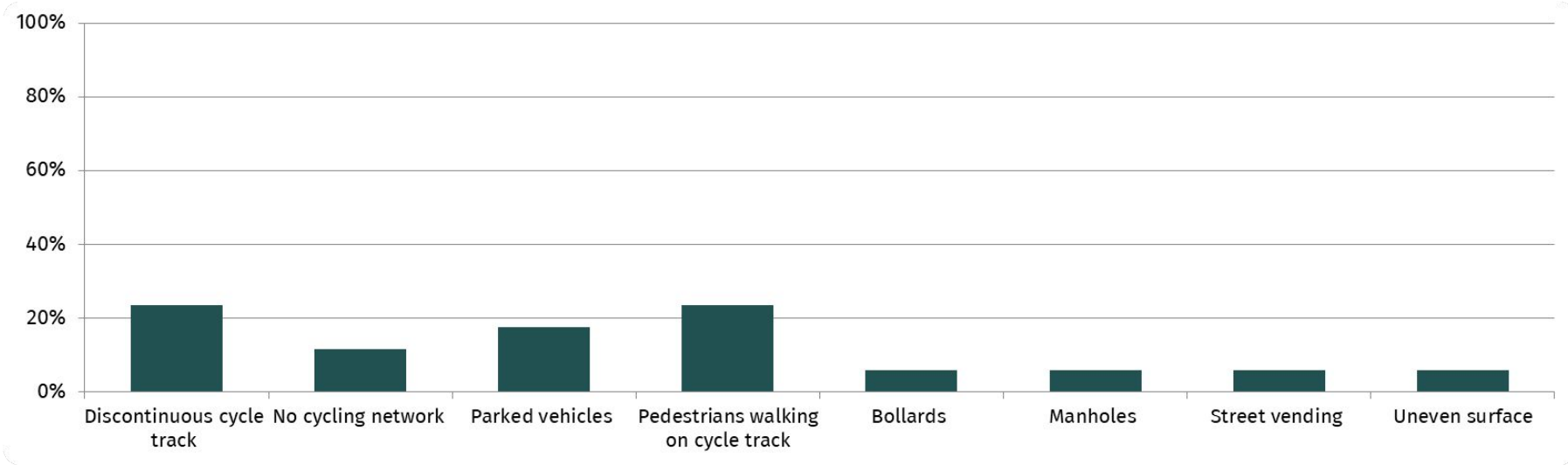
Amongst the people interviewed, more than 60% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?



Nearly 40% of cyclist said absence or discontinuous cycle track is a major deterrent to cycling. Encroachments by pedestrians and vehicles were highlighted as other major hindrances in cycling.

What obstructions do you face while cycling?

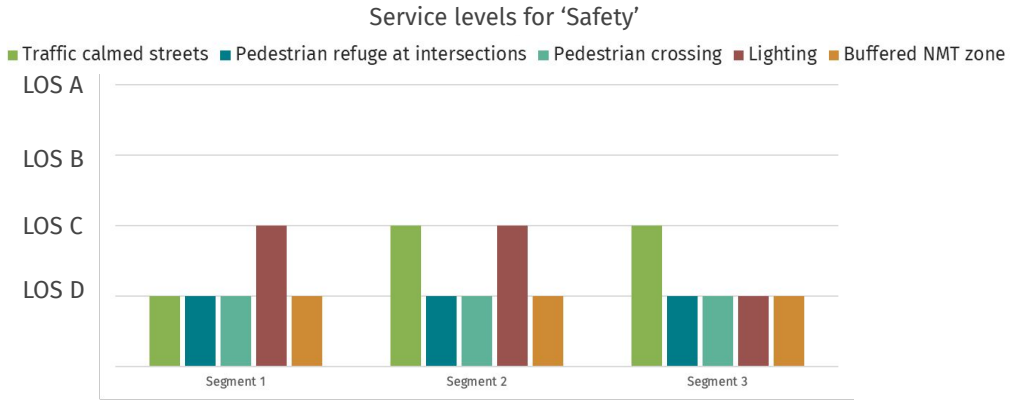


Safety

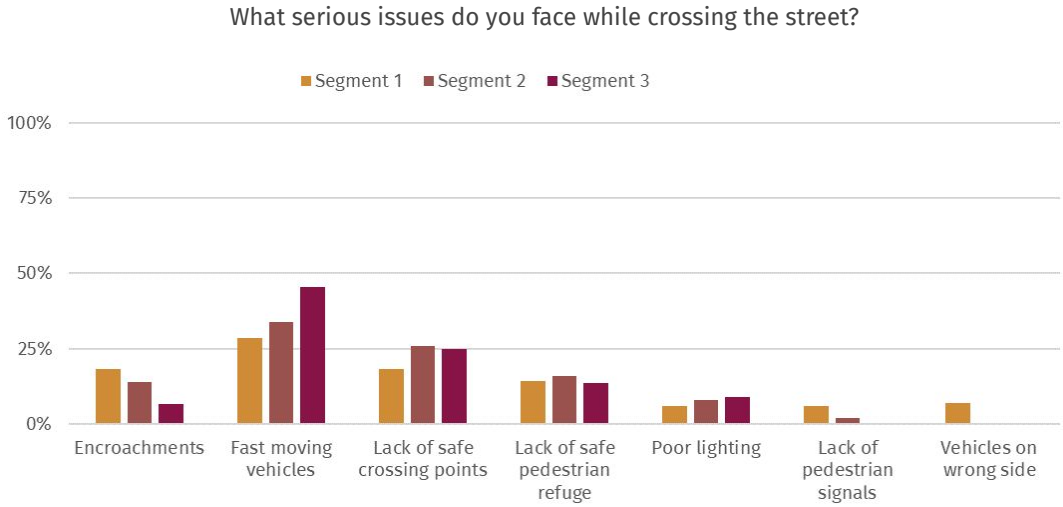
Recommendations

1. Table top crossing at important institutes can improve safety while crossing from speeding vehicles.
2. It was observed that street lighting along the larger plots with high boundary walls is inadequate causing safety concerns for pedestrians. Pedestrian lighting with seating can be added to improve safety and liveability on the street.

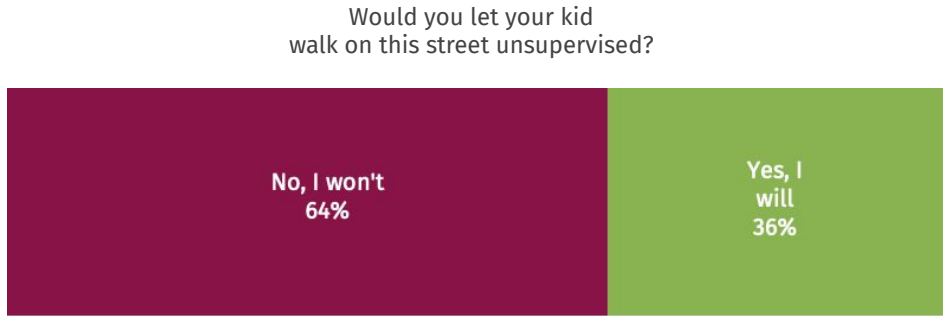
Fast moving vehicles & lack of safe crossing infrastructure has been rated low for all segments, along with lighting infrastructure for Segment 3



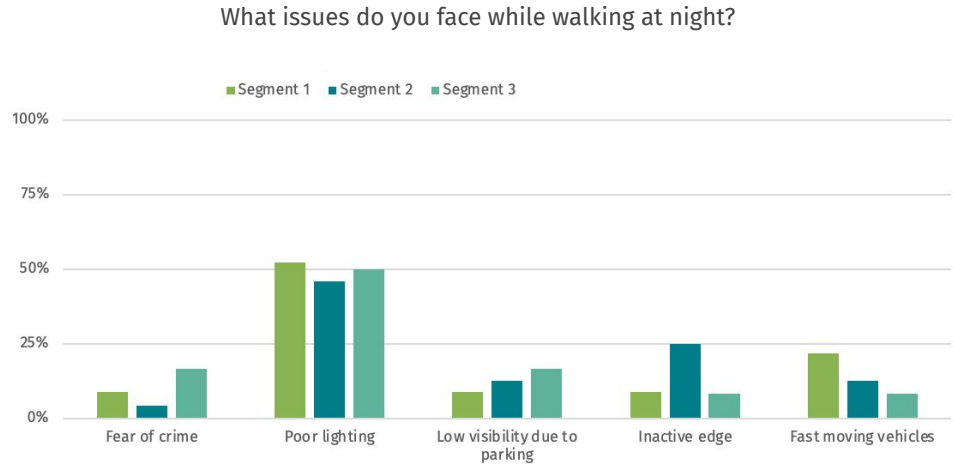
Nearly 80% felt that fast moving vehicles & safe crossing was a serious issue. Poor lighting and encroachments were also highlighted



Of the 92 caregivers surveyed, nearly 65% did not find the street safe for children to walk unsupervised.



Of the 51 people who had used the street at nights, around 50% of them felt unsafe at nights due to poor lighting. Many had issues with low visibility due to parked vehicles and inactive edges



7 Jangli Maharaj (JM) Road

Design	Observation	Perception
7.5/10	9/10	9/10

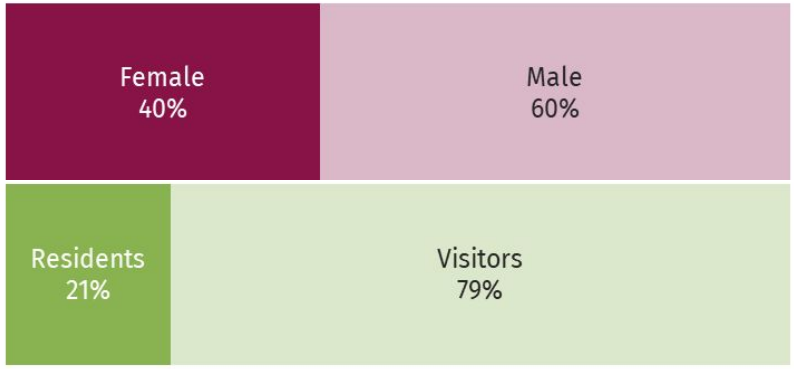
Character: Arterial Street with high commercial value
Right-of-Way: **33 to 36m**
Selected Length for study: **1.6 km**

Street redeveloped in **2016**

Street design as per guidelines:
Pune USDG: 2 MV lanes with min. 3.5M clear footpath on both sides
Pune Bicycle Plan: 2M dedicated cycle track on both sides
BRT lane: No
Metro: No
Grade separator: No

One-Way street with dense tree cover.

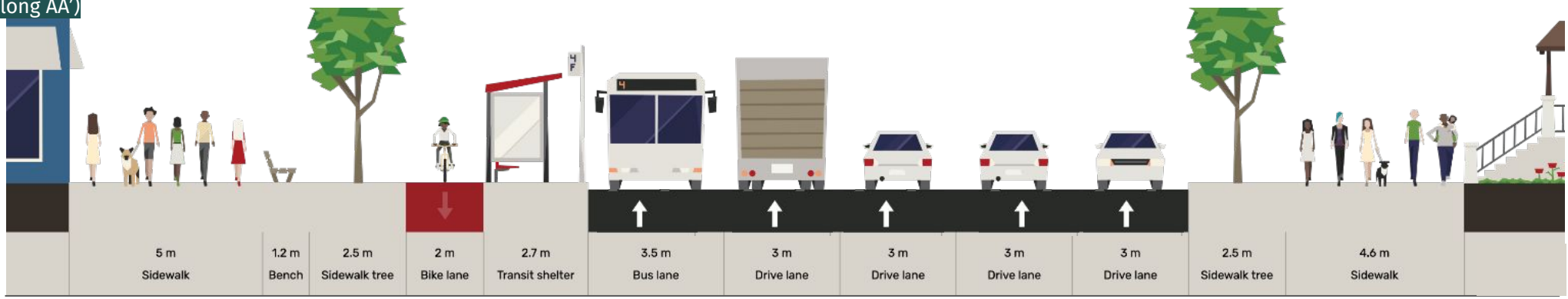
167 respondents
for the perception survey



Volume counts:
Conducted during morning and evening peak hours, for both sides of the roads at **Deccan bus stand.**

						PMP		PVT.		
	2004	52	856	4268	712	40	0	0	68	20
	1564	64	1548	4480	632	64	4	28	76	20

Street section
(along AA')




Ramps for UA.

Cycle track blocked by commercial spillover and 2W parking.


People seen enjoying, relaxing and socialising on streets.


Wide footpaths.


On going construction work.


Good design encouraging more activities.

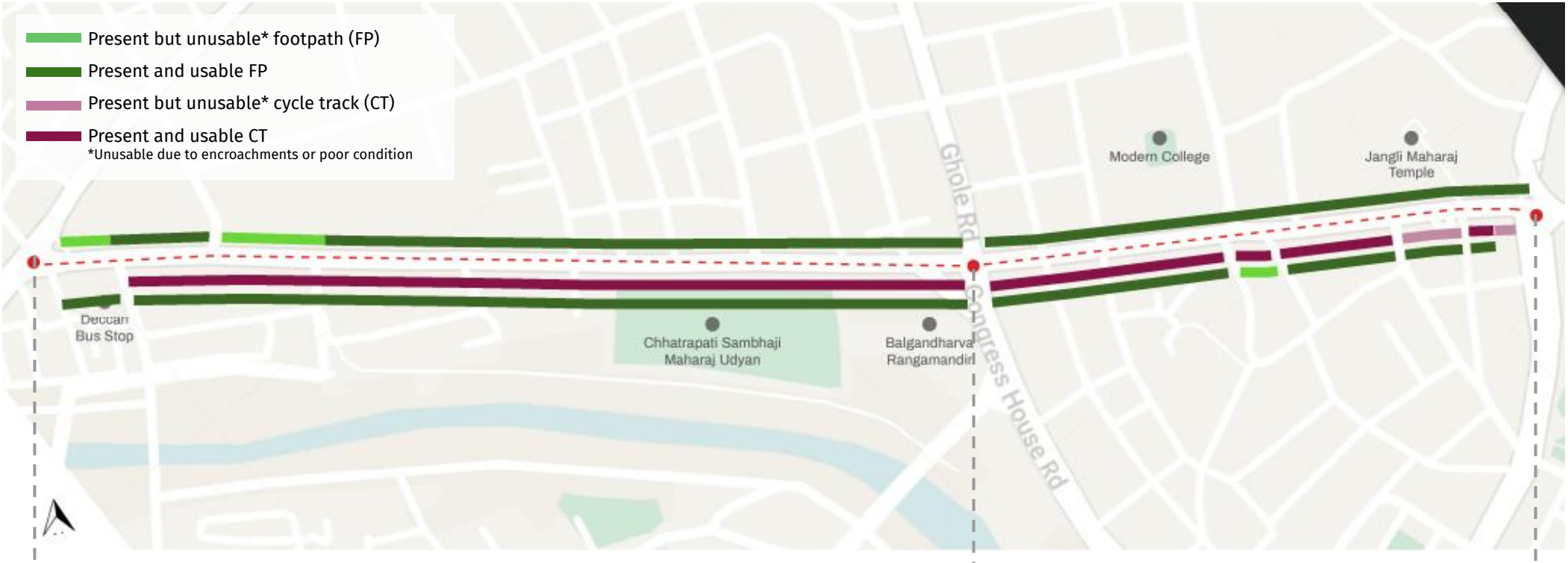

Lack of safe crossing with no pedestrian refuges.

Wrongly designed zebra crossing ending at kerbs.

Observed footpath & cycle track condition along the stretch

% split of footpath (FP) condition

% split of cycle track (CT) condition



SEGMENT 1 | **SEGMENT 2**

Garware Chowk — ***Balgandharva Chowk*** — ***JM Corner***

On & off footpath pedestrian count during morning peak hour, segment-wise

	Segment 1	Segment 2
On FP	1920	1128
Off FP	84	12
	2004	1140

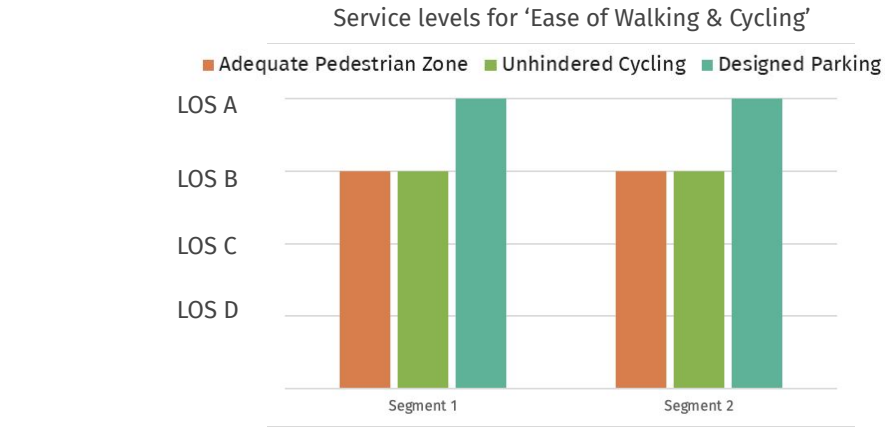
Almost 97% of the pedestrians were walking on footpath!

Ease of walking

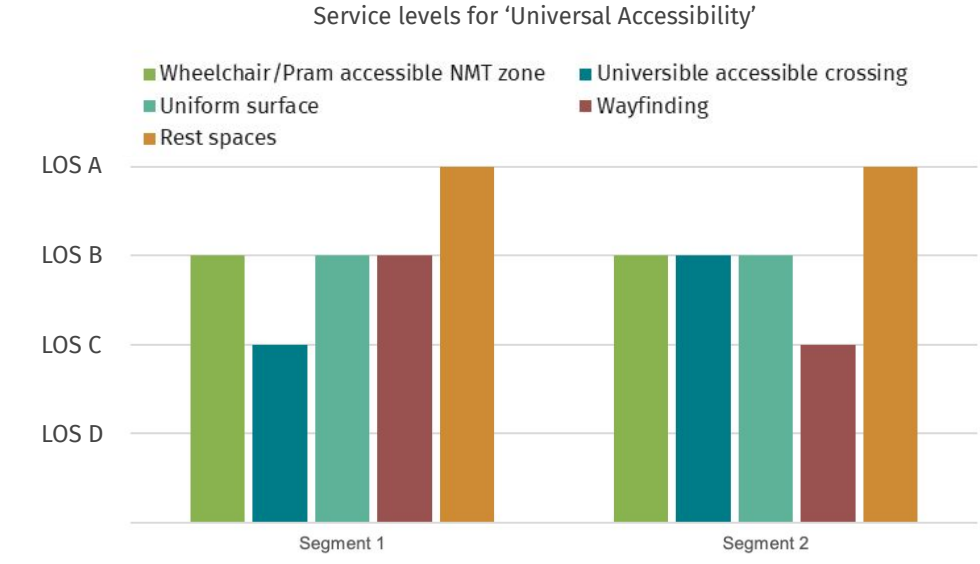
Recommendations

1. **Removing encroachment** by commercial properties from footpaths.
2. **Alternate walking provision** near under-construction sites.
3. Improving **lighting** near Deccan bus stop.

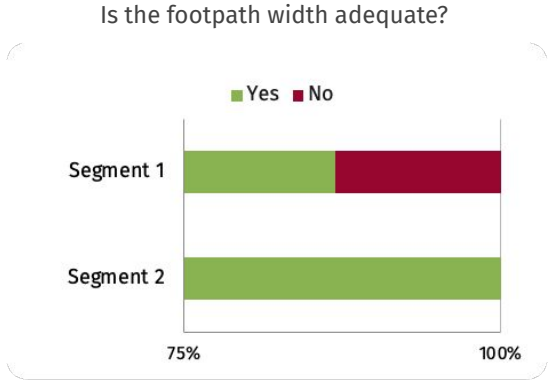
The entire selected stretch of JM road is well designed for walking, cycling and parking



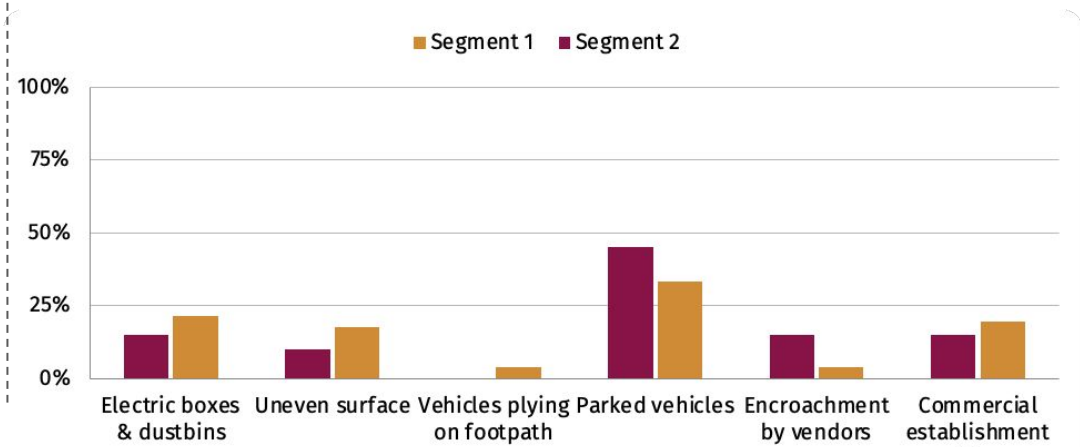
Both segments provide above average placemaking, universally accessible NMT zone. Crossing is an issue near deccan bus stop.



About 50% of Segment 1 respondents feel the footpath isn't walkable; mostly due to encroachments by parked vehicles and on-going construction work.



Encroachment by vehicles, along with commercial and vending activities are the main obstacles faced by people during walking especially at the end of segment 2.



Ease of cycling

Recommendations

Although the street has 2-way cycle track on one side, half of the respondent cyclists felt they cannot use it mainly because of the parked vehicles, advertisement boards, and pedestrians on cycle tracks. On street enforcement for removal of commercial advertisements and parked vehicles on cycle track is necessary.

Around 50% respondents said the cycle track isn't usable due to encroachment by pedestrians and vehicles. The street has an above grade cycle track (in level with the footpath).

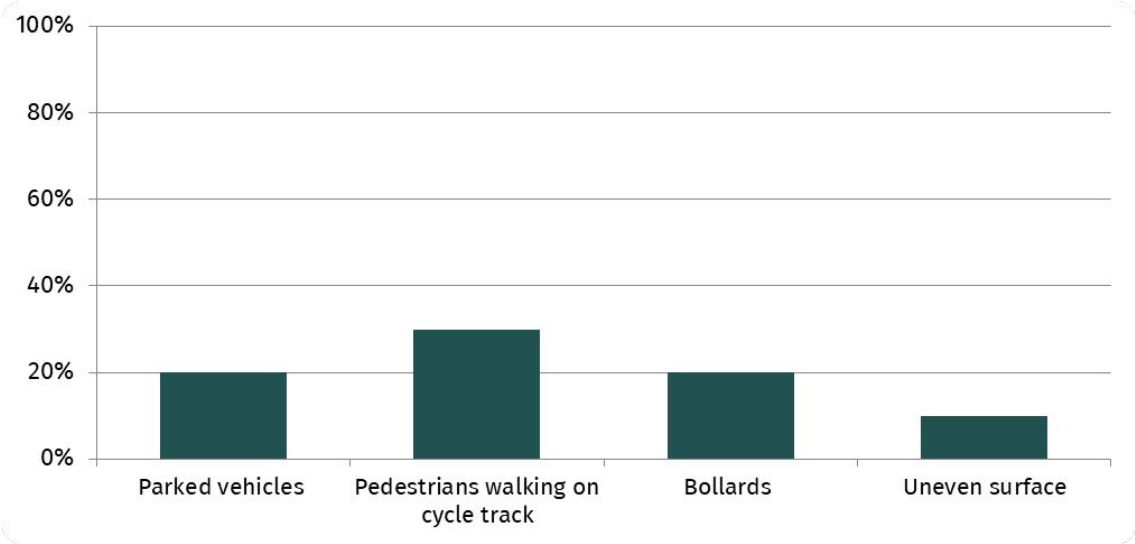
Do you use the cycle track?

Amongst the people interviewed, around 75% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?

Nearly 40% of cyclists felt pedestrians on cycle track are major obstruction while cycling. More than 40% felt that bollards and parked vehicles are deterrents to cycling on the cycle track.

What obstructions do you face while cycling?

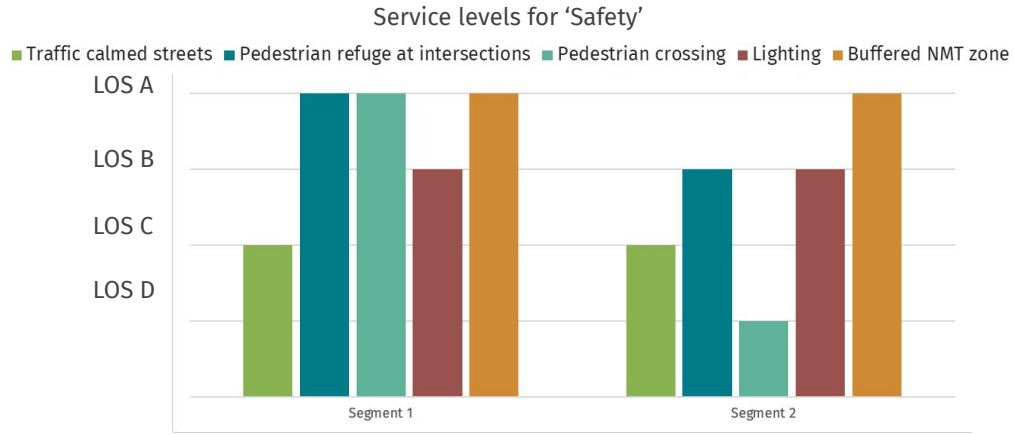


Safety

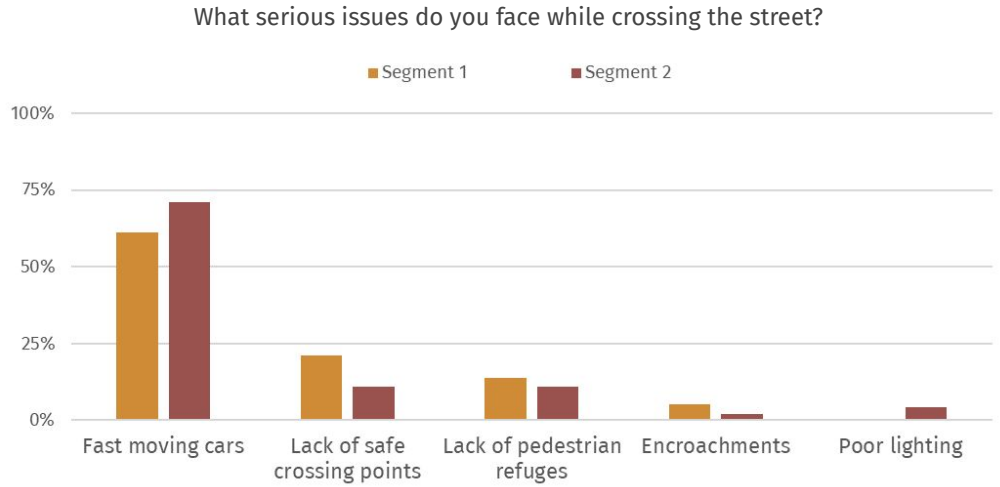
Recommendations

1. **Tabletop crossing** needed near Modern school, Pataleshwar and Deccan bus stop with traffic calming measures.
2. **Parking can be enforced** actively on both the segments. Pay and park can help in managing the parking demand.
3. Provision of more **lighting** near Pataleshwar and JM corner.

Traffic calming for the whole selected stretch should improve. Segment 2 need to design for safe crossing infrastructure.

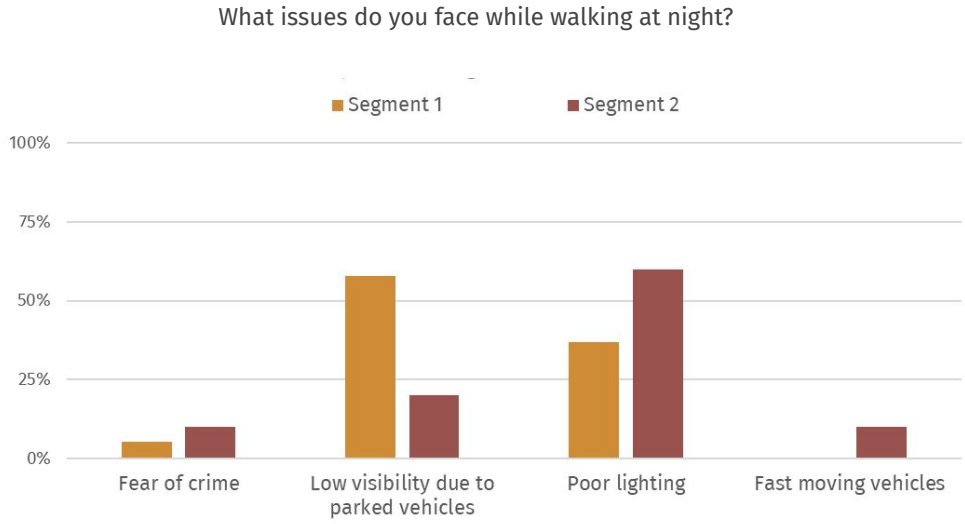


More than 50% of respondents are saying fast moving traffic are major threat while crossing.



More than 80% of the caregiver respondents feel safe to let their kids to walk unsupervised.

Visibility is a major deterrent at night. Majority of people have visibility issues due to parked vehicles (Seg 1) and low lighting (Seg 2).



8 Karve Road

Design	Observation	Perception
4.5/10	5/10	6/10

Character: **Arterial road** with mixed land use- institutions, hospitals, residential and commercial.
Right-of-Way: **27 to 33m**
Selected Length for study: **3.2km**

Street redeveloped in **2019-2022**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with 3.5M clear footpath
As per Pune Bicycle Plan: 2M dedicated cycle track on both sides
BRT lane: No
Metro: Yes
Grade separator: Yes

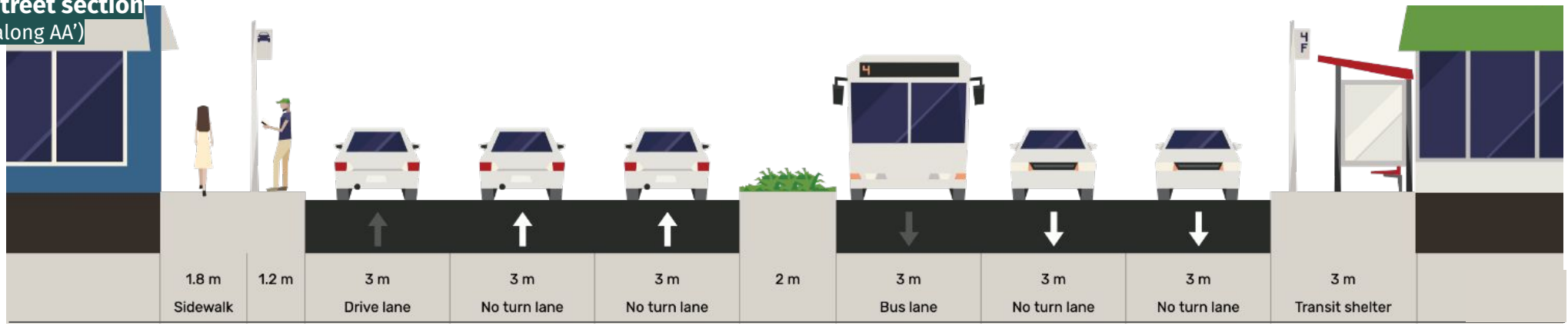
Karve road has a double decker grade separator with a Metro viaduct placed on top and a vehicular flyover below it.

294 respondents
for the perception survey

Volume counts:
Conducted during ☀ morning and ☾ evening peak hours, for both sides of the roads at **Shelar Mama chowk.**

☀	1024	128	1416	4880	1064	132	32	16	52	20
☾	1492	128	1524	3860	1100	172	12	8	68	32

Street section
(along AA')




Not accessible narrow footpaths along metro corridor.

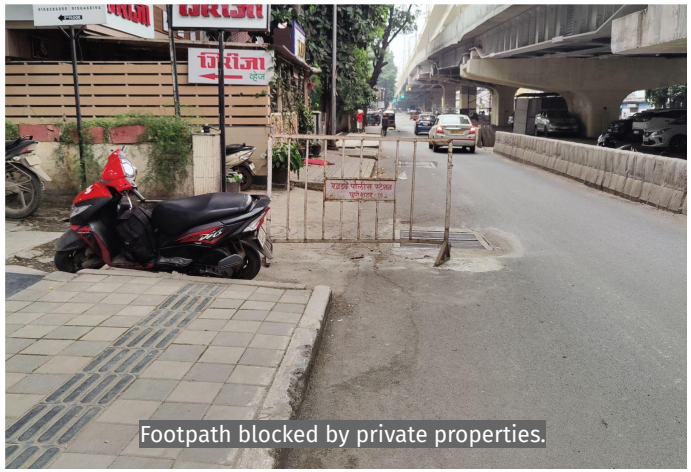

Shelar mama junction attracts huge crowds of working people and school children waiting for buses in the peak hours.


Vehicles on footpath at Garware college.


Vehicles on footpath near Karve statue.


Pedestrians on cycle tracks due to obstructed footpaths.


No footpath provision near SNDT College.


Footpath blocked by private properties.


Vehicles parked on footpath at Metro stations.

Observed footpath & cycle track condition along the stretch

% split of footpath (FP) condition

No FP	Present but unusable FP	Present and usable FP
19%	30%	51%

75% of the street has no cycle track!

No CT	Present and usable CT
75%	25%

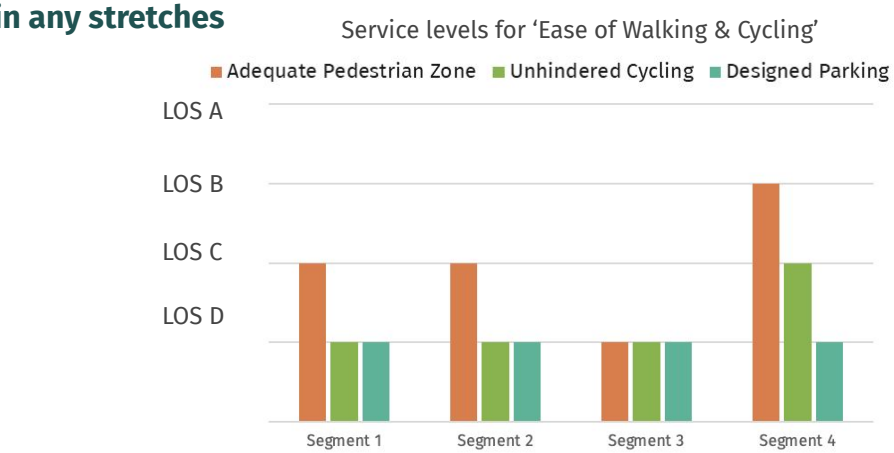
	SEGMENT 4	SEGMENT 3	SEGMENT 2	SEGMENT 1
	Karve Putla	*Paud Phata*	*Nal Stop*	*Garware College Junction*	*Khandoji Chowk*
	Wide footpath at segment 4 have ensured only 9% people walk OFF footpath.				Segment 1 has the highest ped count, yet 40% of people are forced to walk OFF footpath.
On FP	652	272	404	608	
Off FP	68	556	240	416	
	720	828	837	1024	

Ease of walking

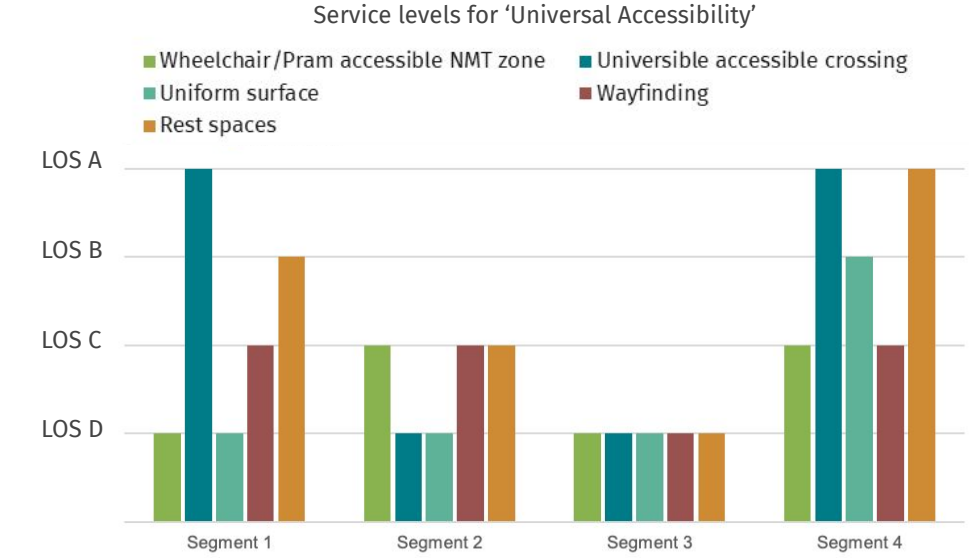
Recommendations

1. Wider footpaths need to be provided, especially at metro stations with higher expected footfalls.
2. 2W are seen moving on footpath, forcing pedestrians to walk on MV lanes.
3. Ramps need to be provided at crossings and intersections.
4. Permanent wide footpath to be built near Shelar Mama chowk, SNDT, Athavale chowk and temporary provision should be made near construction sites.

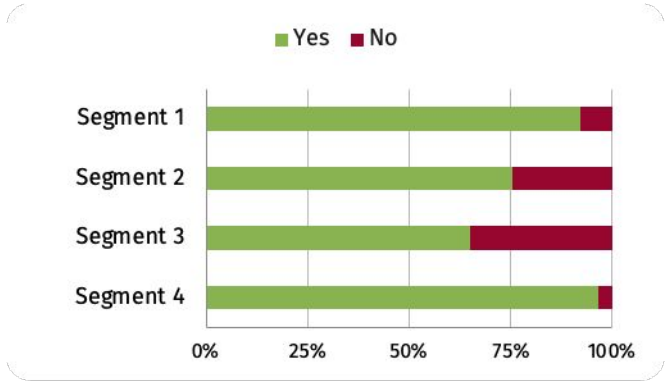
Segment 4 has better pedestrian and cycling facilities, Segment 3 severely lacks in design, and space allocation. Parking is not designed in any stretches



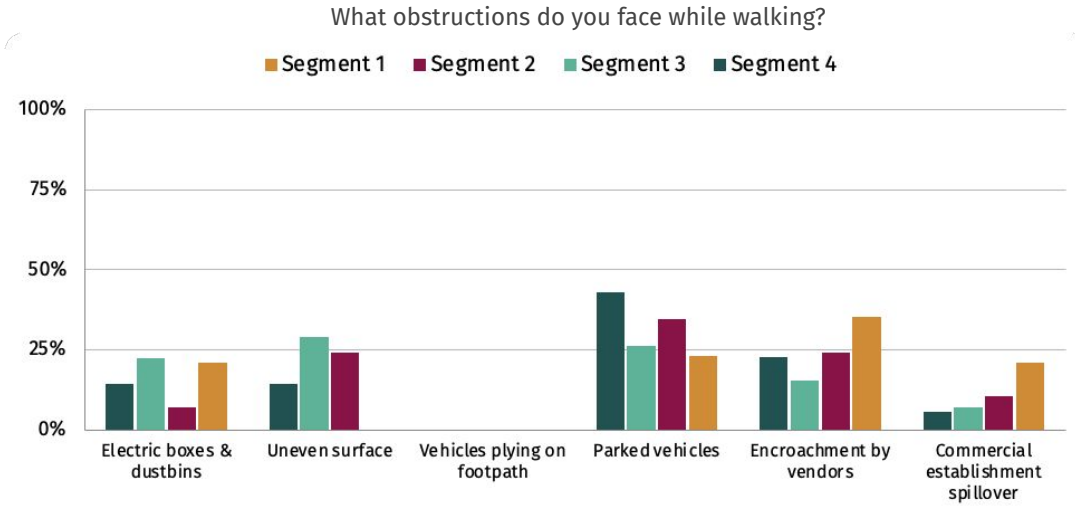
Segment 1 & 4, have provided adequate UA infrastructure. Segment 3 and 4 lack severely in providing universally accessible infrastructure



More than 25% of respondents for segments 2 & 3 felt that the footpath width was not adequate wherever the footpath was provided.



Encroachments was highlighted as a major deterrent to walking. Commercial & vehicular encroachment contribute to over 50% of the responses.



Ease of cycling

Recommendations

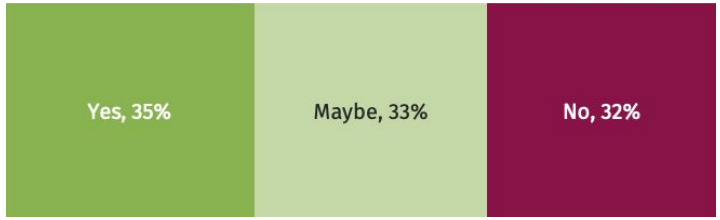
1. The CT provided is not continuous. Also, in segment 1 the FP infra along the provided CT is inadequate, forcing people to walk on the CT- rendering it useless.
2. Metro stations need to have spaces for cycle parking.
3. Enforcement on segment 4 can clear cycle tracks of obstructions.

Segment 4 offers better cycle track as compared to others. Major stretches of segment 2 & 3 either don't have a cycle track.

Do you use the cycle track?

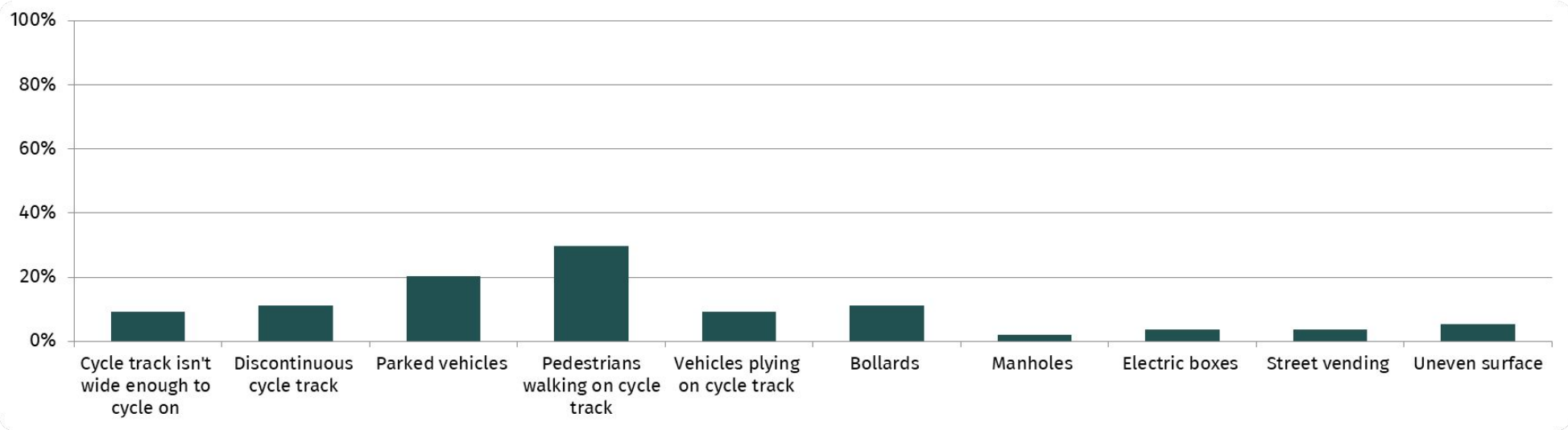
Amongst the people interviewed, more than 65% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?



More than 50% of them felt that they were hindered by pedestrian and vehicular encroachments. Closely spaced bollards were also highlighted as a deterrent to cycling.

What obstructions do you face while cycling?

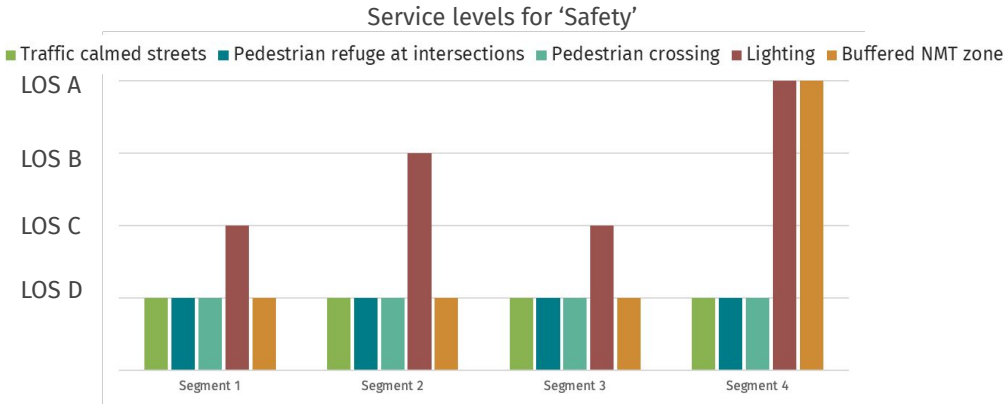


Safety

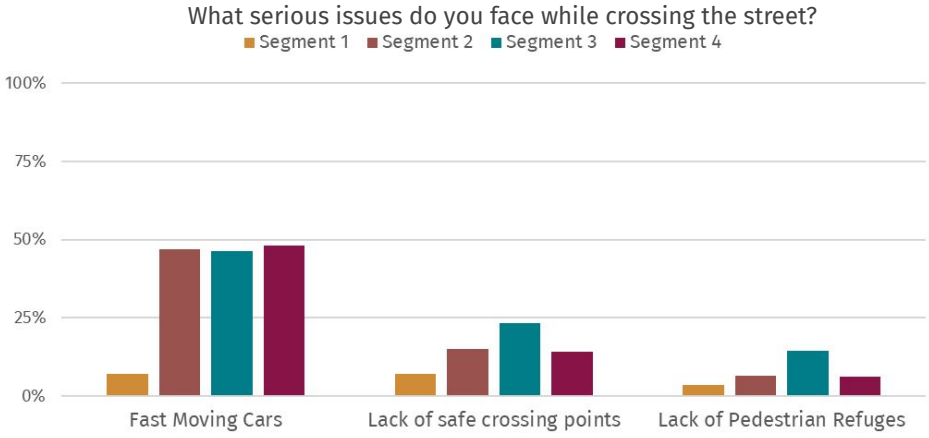
Recommendations

1. Metro rail pillars cause blindspots at crossing, the pedestrian refuge can be created for safe waiting spaces.
2. Traffic calming measures especially at stretch near Karve putla and SNDT college.
3. Table top crossing in segment 1,2 and 3 need to be completed.
4. Pedestrian lighting in segment 3 along with adequate footpaths need to be urgently provided.

All segment need to provide better crossing infrastructure and traffic calming. Seating, lighting & resting infrastructure is provided adequately on segment 4.

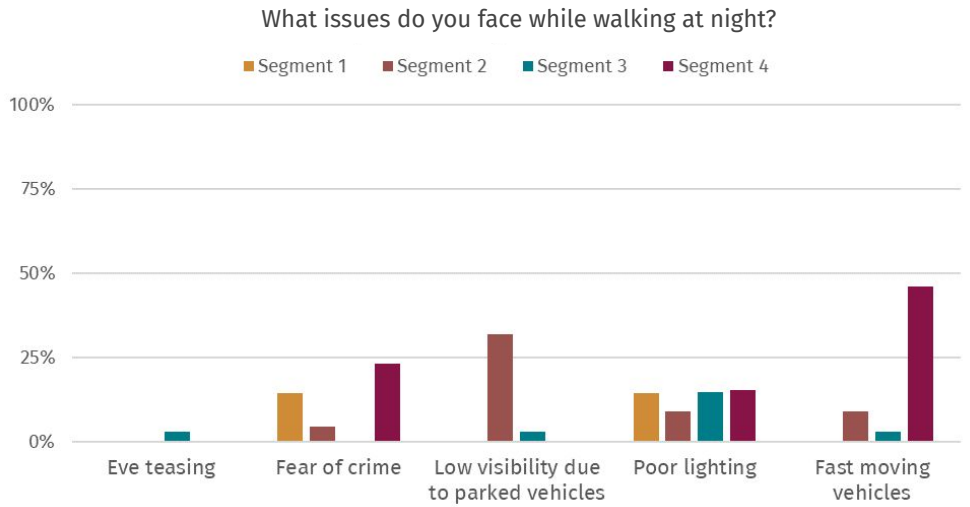


Nearly 50% felt that fast moving vehicles was a serious issue while crossing the streets. People also highlighted the lack of safe crossing points and pedestrian refuge as major concerns.



Of the caregivers surveyed, nearly 60% did not find the street safe for children to walk unsupervised Segment 4 provides buffer of plants from fast moving vehicles.

Of the 111 people who had used the street at nights, more than 50% of them felt unsafe at night due to poor lighting (mainly for segment 1 & 3)



9 Sinhagad Road

Design	Observation	Perception
4/10	5/10	3.5/10

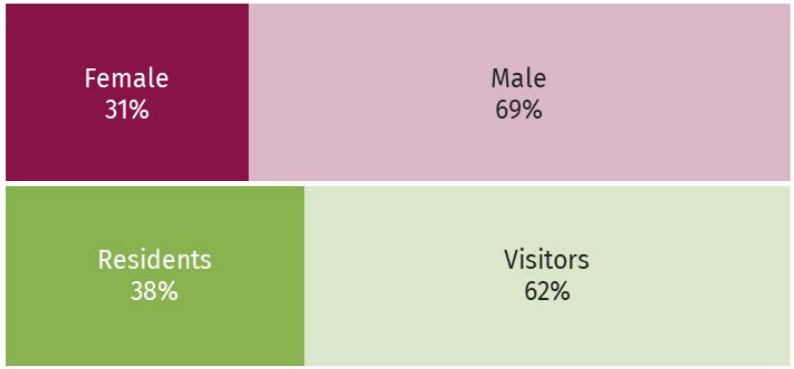
Character: Arterial streets with varied mixed use throughout.
Right-of-Way: **30-36m**
Selected Length for study: **2.3**km

Street redeveloped in **2022**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with 3.5M clear footpath on both sides
As per Pune Bicycle Plan: 2M cycle track on both sides
BRT lane: No
Metro: No
Grade separator: No

Arterial road connecting central part of Pune to NH4 and Defense institutions like NDA.

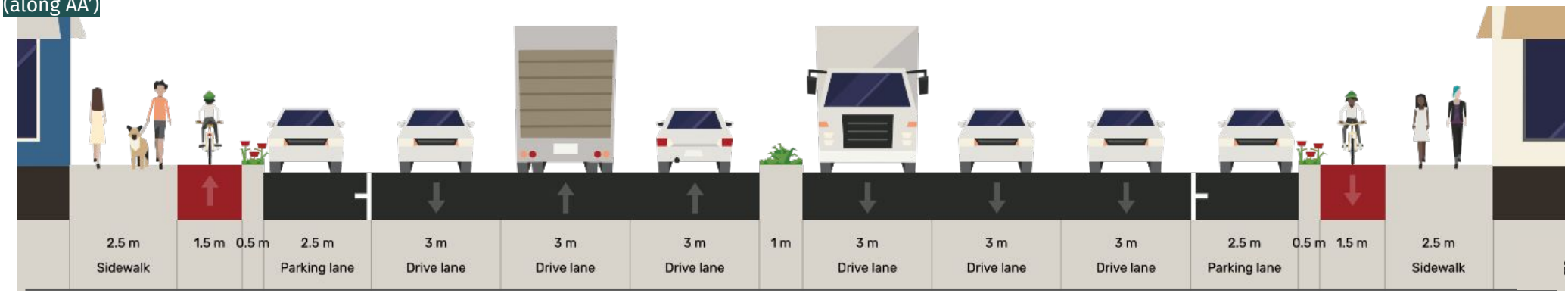
290 respondents
for the perception survey



Volume counts:
Conducted during ☀ morning and ☾ evening peak hours, for both sides of the roads at **Deshpande garden.**

☀	428	32	1016	7264	1384	40	4	16	296	32
☾	1116	132	1362	6840	1356	12	6	24	246	0

Street section
(along AA')




Pedestrians walking on MV lanes.


Cyclist using the cycle tracks while the footpath is blocked by parking.


Unavailability of footpaths.


Students cycling safely.


Vehicles blocking the walkways.

Well positioned bus stop to allow continuous cycling.

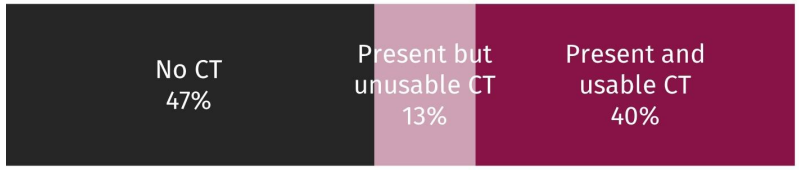

Young students on the way to school.


Inadequate lighting.

Observed footpath & cycle track condition along the stretch

More than half of the street lacks walkable footpaths

More than half of the street lacks adequate cycling infrastructure



SEGMENT 3 | **SEGMENT 2** | **SEGMENT 1**

Rajaram Bridge — ***Rohan Kritika Society*** — ***Deshpande Chowk*** — ***Dandekar Bridge***

On & off footpath pedestrian count during morning peak hour, segment-wise

	Segment 3	Segment 2	Segment 1
On FP	260	408	244
Off FP	172	20	68
	432	428	312

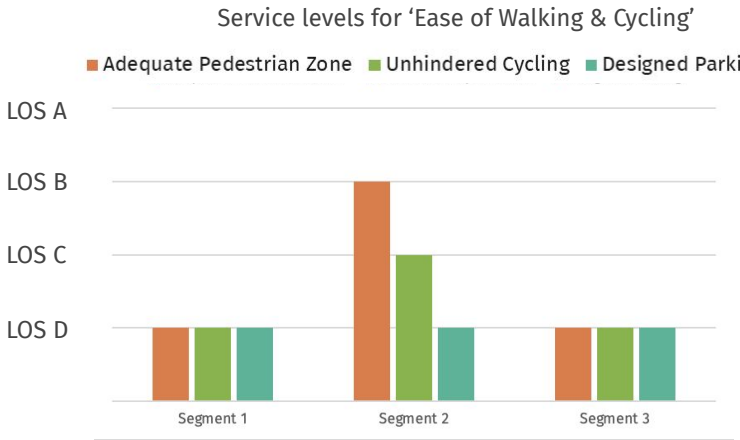
Only 5% people are walking Off the footpath on the well-designed segment 2!

Ease of walking

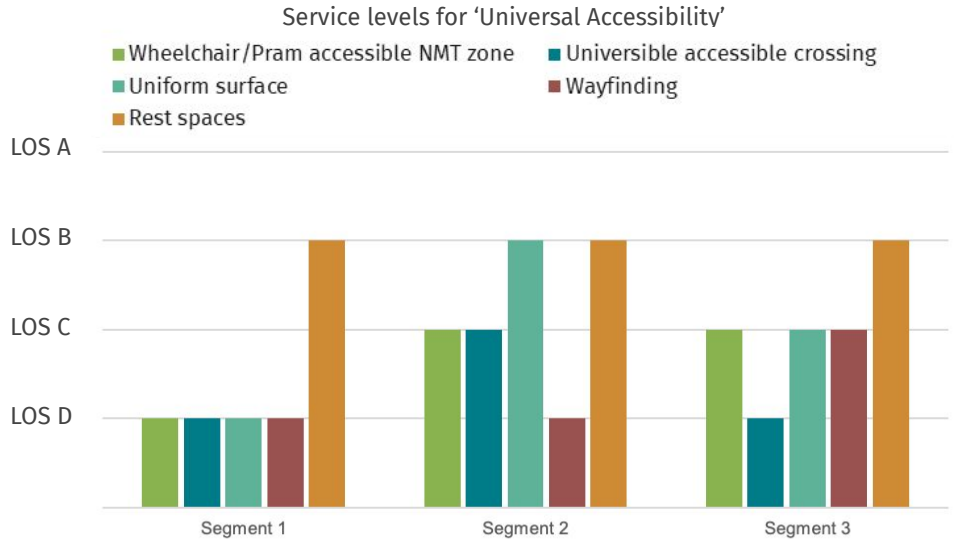
Recommendations

1. **Creating continuous and wide footpath** on the entire street extending the one provided near Deshpande garden side.
2. **Removing parked vehicles and encroachment.**
3. Additionally, **placemaking** infra can be added to make the street more liveable.

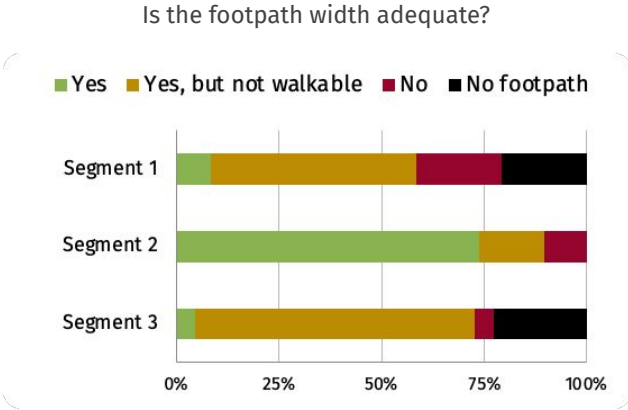
Segment 1 and 3 lack severely in design for ease of movement. Seg 2 has at least 50% of the stretch with adequate walking & cycling.



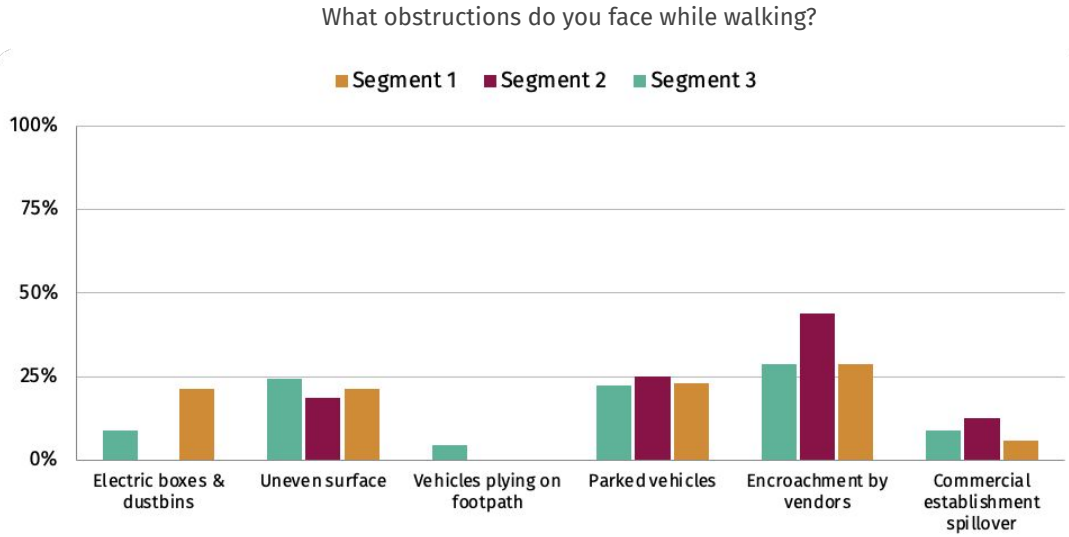
All stretches have acceptable instances of seaters. Street lacks severely in Universal Accessibility



More than 90% of the people felt that the footpath is unwalkable in segment 1 and 3. In Segment 2, 75% of the people feel the width is adequate.



Encroachment by vendors and parked vehicles constitute for more than 50% of the responses. More enforcement needed.



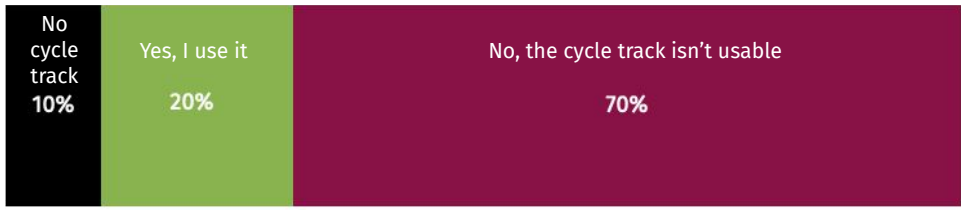
Ease of cycling

Recommendations

1. **Creating continuous and wide cycle tracks** extending the one provided in segment 2.
2. **Strict enforcement** to remove vehicles on cycle tracks.
3. **Cycle signages.**

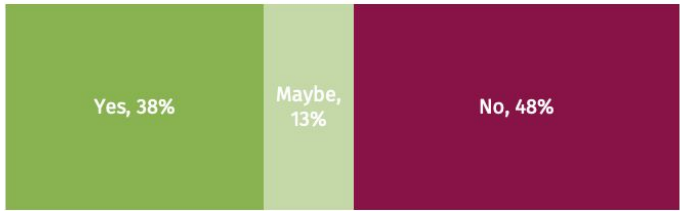
Only Segment 2 has a continuous cycle track. Segment 1 and 3 needs need to be redesigned to accommodate cycle track.

Do you use the cycle track?



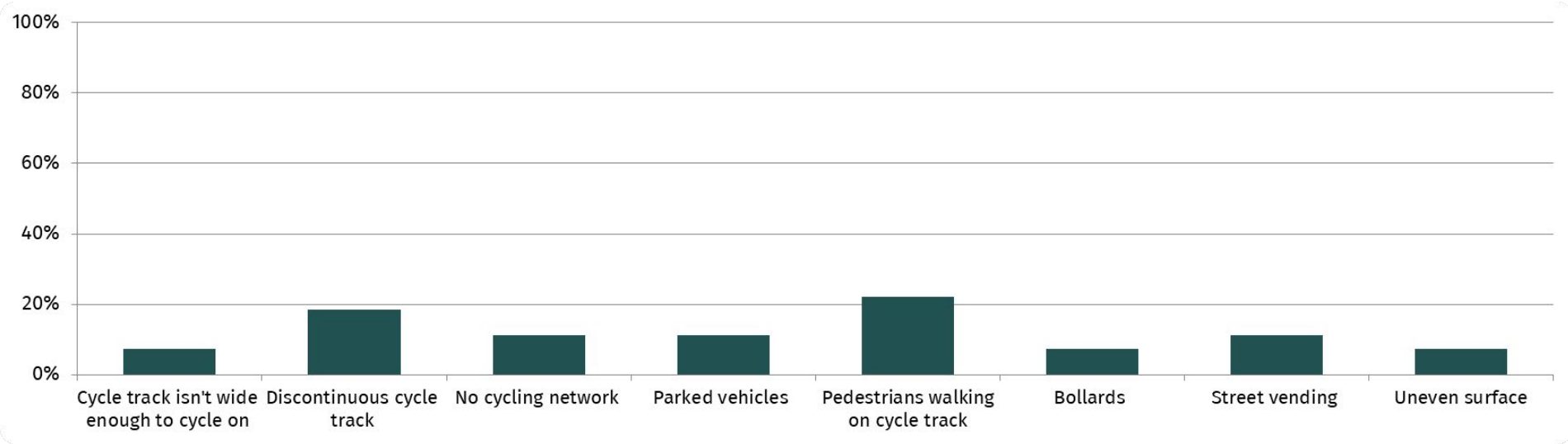
Amongst the people interviewed, more than 50% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?



Discontinuous cycle track and encroachment by pedestrians constitute more than 40% of the responses. Cycling network absent and ill-designed, with uneven surface other major deterrents.

What obstructions do you face while cycling?

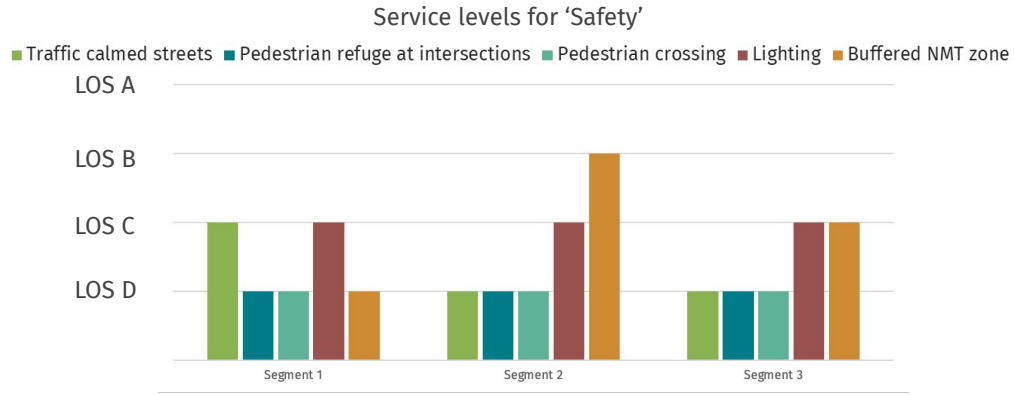


Safety

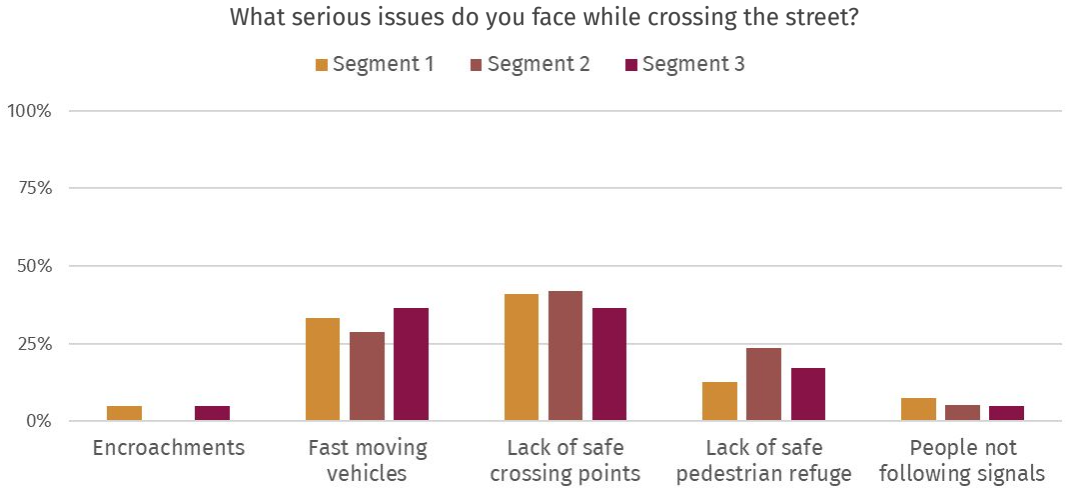
Recommendations

1. Additional pedestrian lighting to be provided on segment 1 and 3.
2. Traffic calming measures like rumble strips, and table top crossing can be added for safe crossing especially near Deshpande garden in seg 2 and school in seg 3.
3. Shrubs can be planted on the NMT buffer zone.

All segments lack severely in safe crossing infrastructure, along with traffic calming measures.

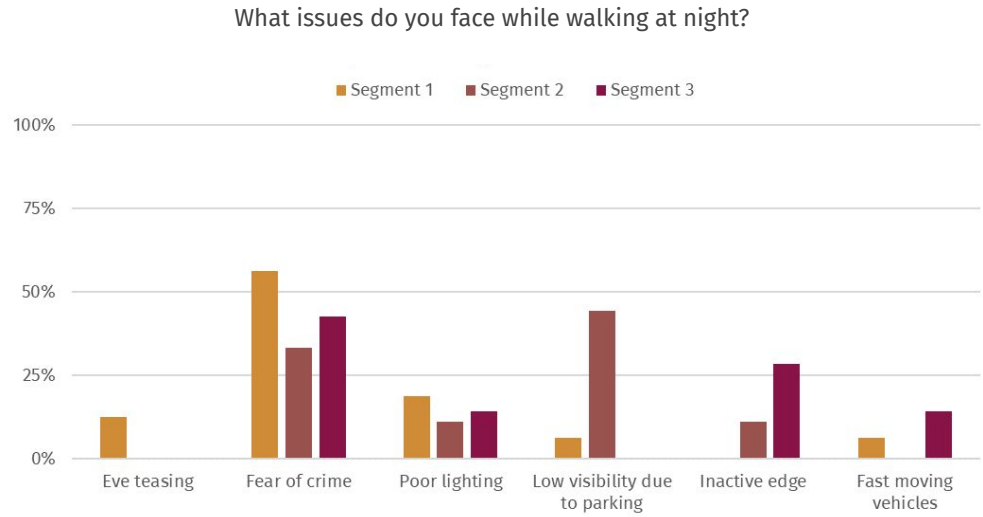


More than 60% respondents feel speeding vehicles and lack of safe crossing points as major threats.



Of the 53 caregivers surveyed, nearly 90% did not find the street safe for children to walk unsupervised.

Around 50% of Segment 1 & 2 respondents feel fear of crime, and low visibility due to parked vehicles as major threats during night.



10 Satara Road

Design	Observation	Perception
5.5/10	7.5/10	6.5/10

Character: Arterial street having heavy traffic flow and commercial land-use
Right-of-Way: **40-42m**

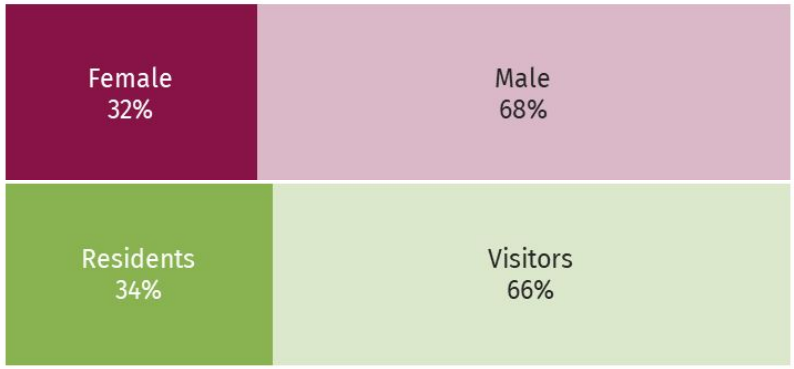
Selected Length for study: **3.0km**

Street redeveloped in **2016-17**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with at least 2M clear walkway
As per Pune Bicycle Plan: 2M segregated cycle track on both sides
BRT lane: Yes
Metro: Proposed
Grade separator: Yes

The street is a National highway in the city limits, has one of the best PMPML bus frequencies on the BRT corridor.

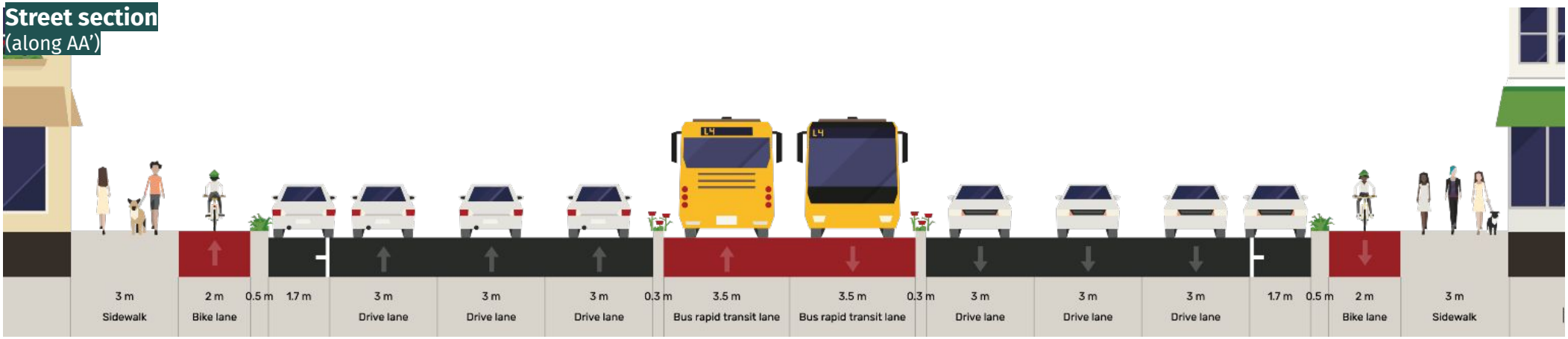
195 respondents
for the perception survey



Volume counts:
Conducted during ☀ morning and ☾ evening peak hours, for both sides of the roads at **Swargate MSRTC bus stand.**

☀	2274	132	648	4554	282	282	6	0	144	6
☾	2916	24	936	4896	192	306	6	24	150	18

Street section
(along AA')



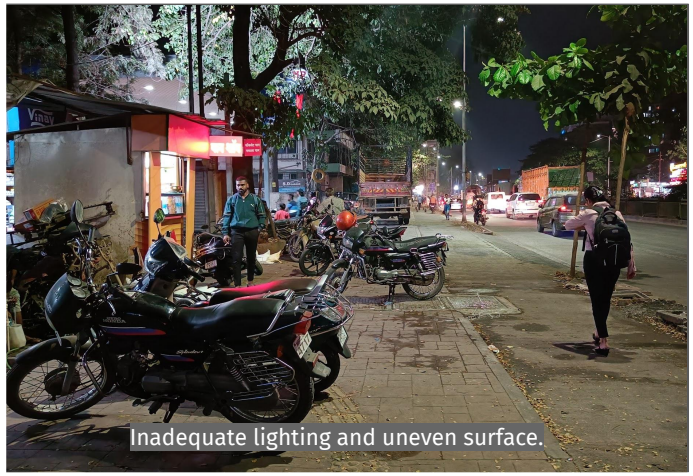

Unsafe crossing in segment 1.


Obstructions in CT forcing cyclists to use MV lane.


Segment 1 has completely encroached footpath.


Huge junctions without safe crossing and ped signals.


Vehicle movement and parking on footpaths


Inadequate lighting and uneven surface.

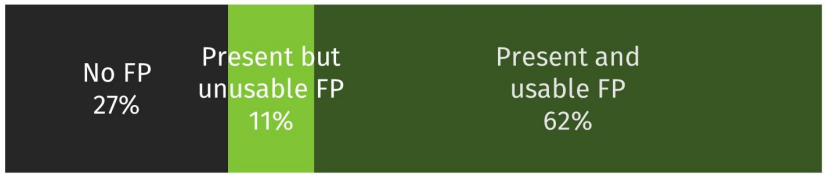

Vehicles on footpath, pedestrians on MV lanes.


Vendors on footpaths, pedestrians on cycle tracks.

Dp boxes, trees blocking pedestrian movement.

Observed footpath & cycle track condition along the stretch

% split of footpath (FP) condition



65% of the street has some cycle track (CT)

Segment 1 has the highest footfall of all the selected streets, but has one of the worst pedestrian and cycling facilities.

	Segment 1	Segment 2	Segment 3	Segment 4
On FP	204	318	203	447
Off FP	2070	216	48	18
	2274	534	251	465

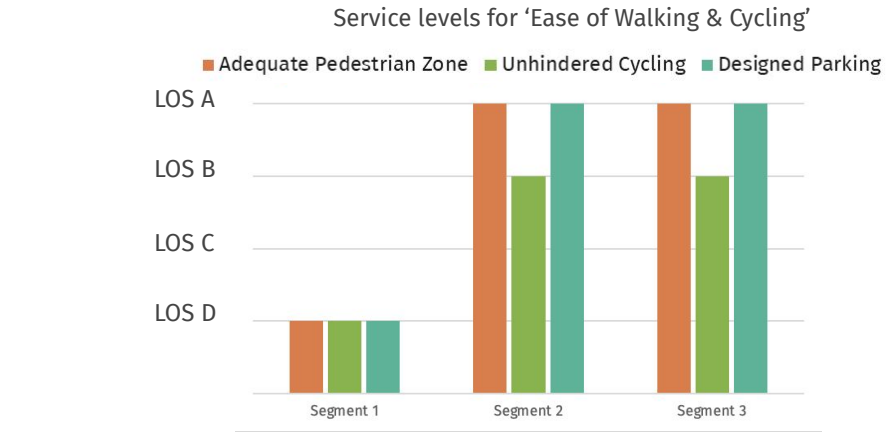
On & off footpath pedestrian count during morning peak hour, segment-wise

Ease of walking

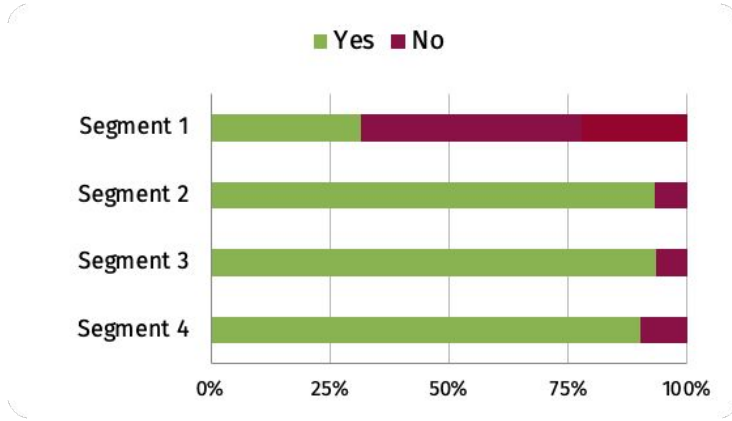
Recommendations

1. Footpaths are encroached by vehicles, commercial spillover and dp boxes on certain locations. Strict enforcement can help shift pedestrians from MV lanes back on footpaths.
2. Wide footpath needs to be created as per segment 2 and 3 template on segment 1.
3. Shrubs can be planted and maintained in the NMT buffer zones.

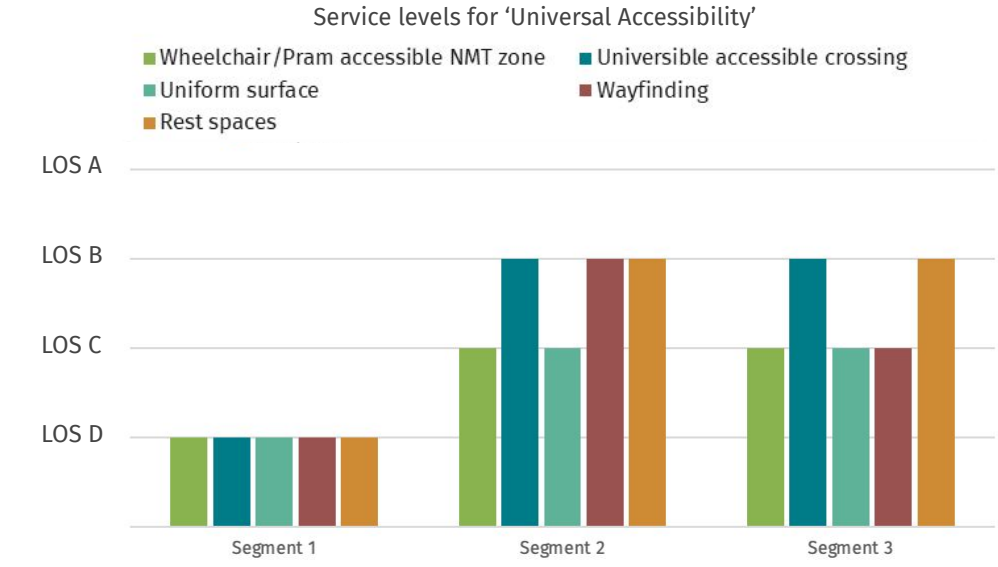
Except segment 1, other two segments have adequate walking, cycling & parking infrastructure



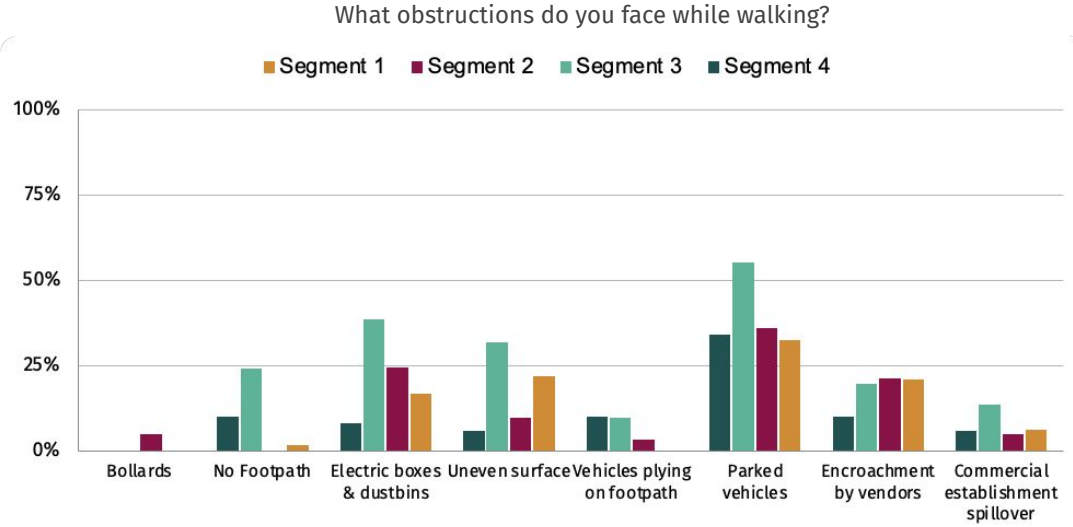
More than 75% of Segment 1 respondents felt that the footpath width was not adequate (mostly absent).



Segment 2 & 3 score well in UA infrastructure. Improvements can be made in surface quality and signages.



Encroachment by vending activities and vehicles has been highlighted as a major deterrent to walking.



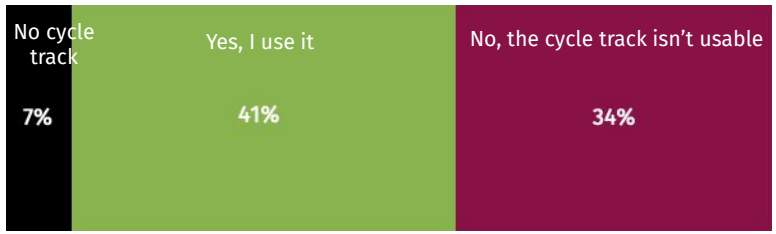
Ease of cycling

Recommendations

1. Cyclists have reported bollards causing hindrances while cycling. Hence, bollards could be installed just at entry and exit points of the tracks with strict enforcement.
2. 65% of the street has cycle track. Some minor repairs, bollards removal and continuous obstruction-free cycletrack can protect cyclists from fast moving and heavy vehicles.

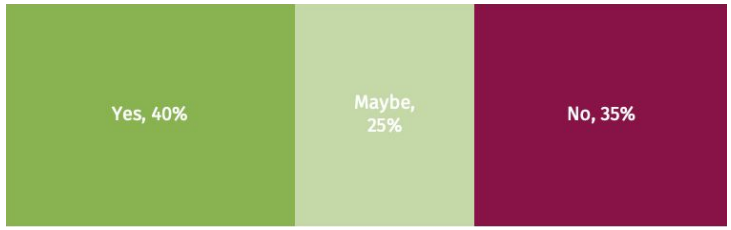
Segment 1 does not have a cycle track. Segment 2 & 3 have fairly well designed track with encroachments in between.

Do you use the cycle track?



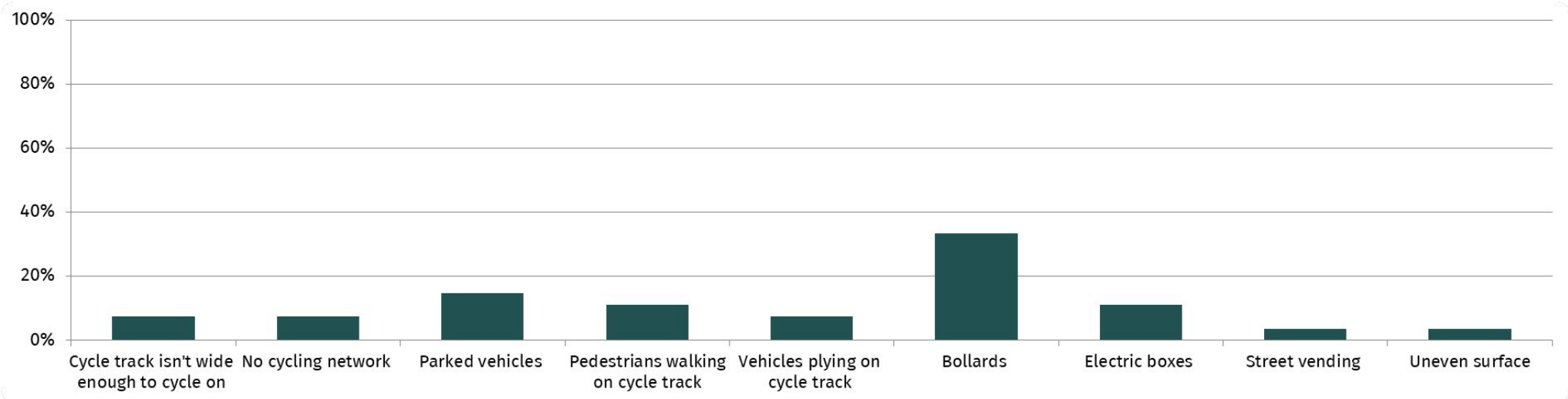
Amongst the people interviewed, around 65% will consider cycling for shorter trips, if better cycling infrastructure is created.

Would you cycle for shorter trips if the right infrastructure is provided?



Bollard were highlighted as a major obstruction while cycling. Apart from this, pedestrians and vehicles on cycle track were also reported as major deterrents.

What obstructions do you face while cycling?

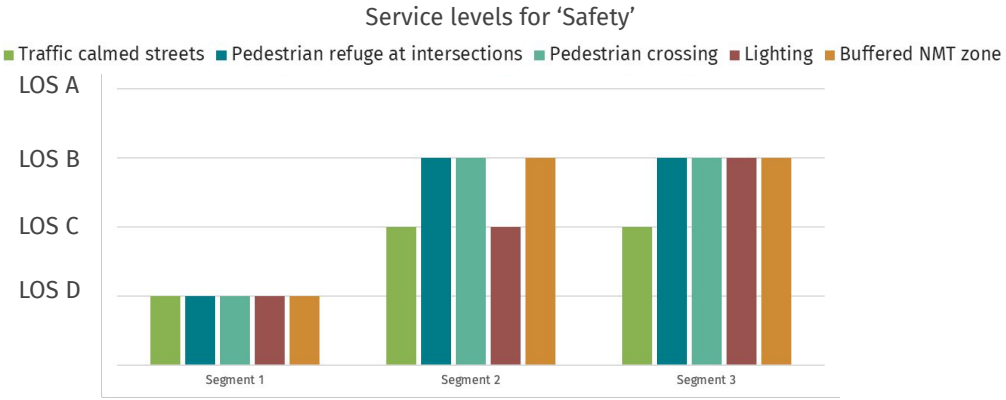


Safety

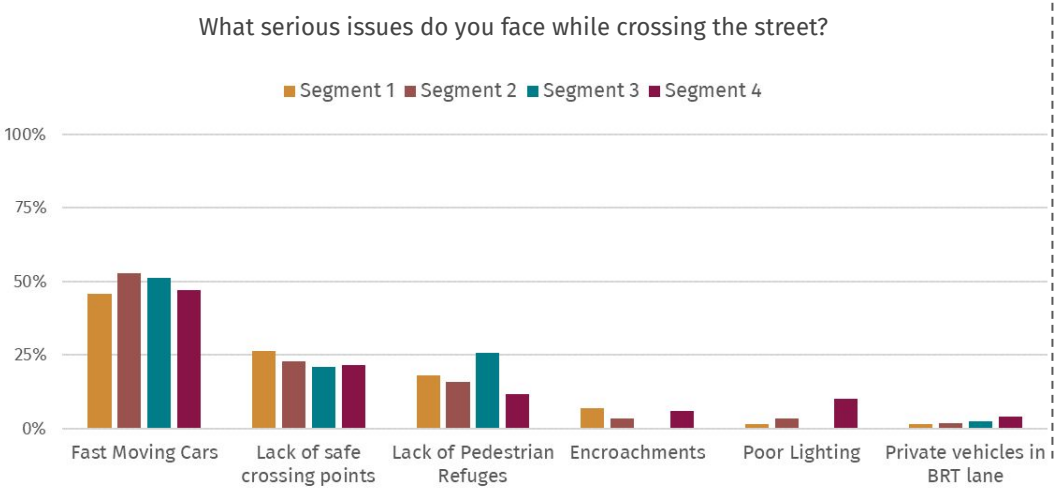
Recommendations

1. Pedestrian refuge with compact junctions.
2. Pedestrian phase in signals.
3. Additional crossing points with tabletops like Natubag, towards swargate etc.

All segments fared LOS D in terms of traffic calmed streets, pedestrian crossing, and pedestrian refuges at intersections. Lighting is a concern in segment 1 and 2.

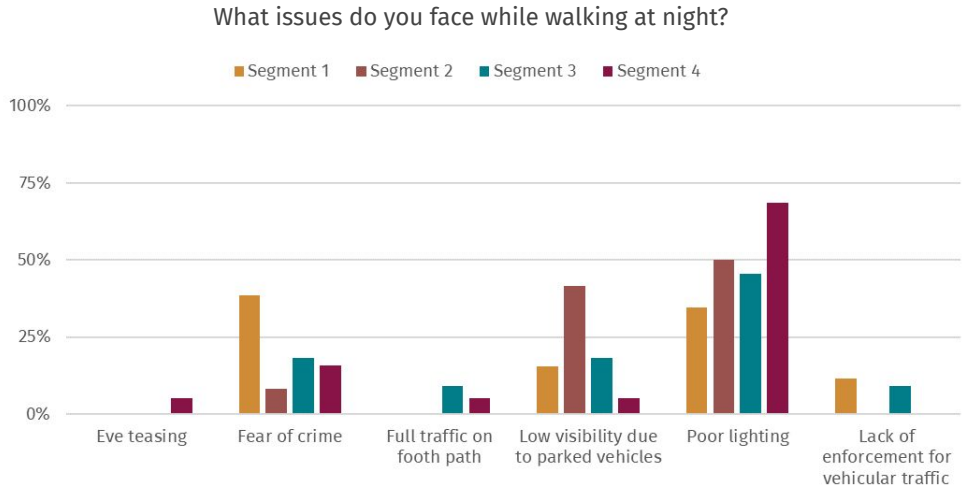


Nearly 50% felt that fast moving vehicles was a serious issue. People highlighted the lack of safe crossing points and pedestrian refuge as major concerns.



Of the 92 caregivers surveyed, nearly 90% did not find the street safe for children to walk unsupervised.

Of the people who had used the street at nights, more than 50% of them felt unsafe at nights due to poor lighting.



11 Shankarsheth Road

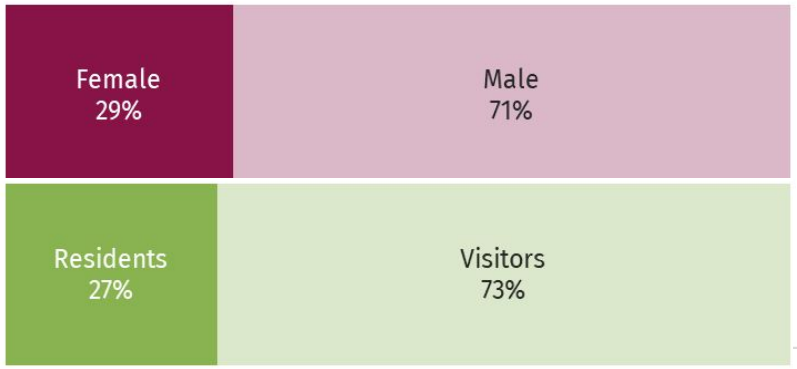
Design	Observation	Perception
3/10	3.5/10	4/10

Character: Arterial street with mixed use development
Right-of-Way: **33M**
Selected Length for study: **1.6 KM**

Street design as per guidelines:
As per Pune USDG: 2 MV lanes with 3.5M clear footpath
As per Pune Bicycle Plan: 2M wide segregated cycle track on both sides
BRT lane: No
Metro: Proposed: No
Grade separator: Yes

Shankarsheth road has the PMPML headquarters, depot with multiple grade-separators (underpass and flyover).

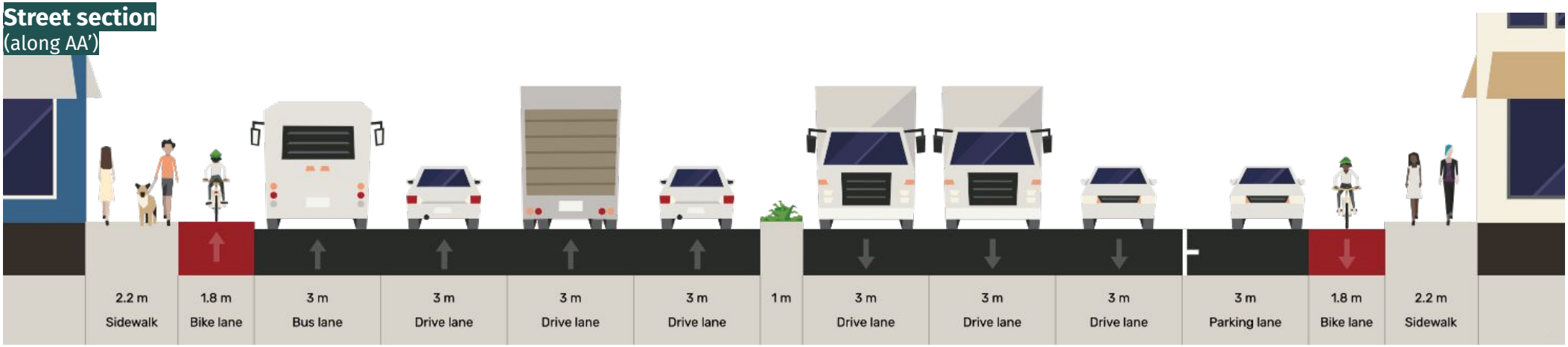
112 respondents
for the perception survey



Volume counts:
Conducted during morning and evening peak hours, for both sides of the roads at **PMPML headquarter (Swargate)**

	1404	96	1602	7152	1404	150	0	12	90	48
	1026	54	1710	6600	1578	126	0	96	228	24

Street section
(along AA')




Discontinuity forcing people to walk with cars.


Lack of safe footpaths at property entrances.


Narrow footpaths


Poor design of footpaths- incorrect height and width.


Discontinuous and obstructed movement.

No provision of footpath

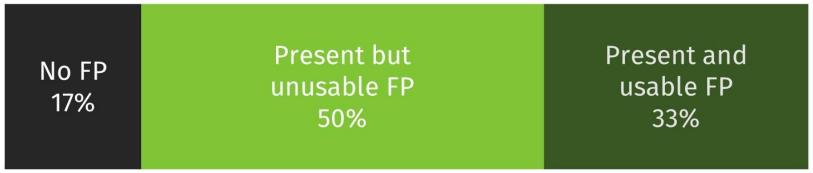

Lack of safe crossing points

Accessing buses.

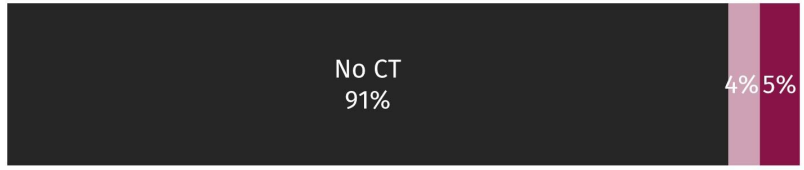

No provision of footpath

Observed footpath & cycle track condition along the stretch

Around 70% of the street has no or unusable footpath



91% of the street has no cycling infrastructure.



SEGMENT 1 **SEGMENT 2**

Swargate Junction ***Tanaji Malusare Road*** ***Raut Road***

On & off footpath pedestrian count during morning peak hour, segment-wise

	Swargate Junction → Tanaji Malusare Road	Tanaji Malusare Road → Raut Road
On FP	1104	402
Off FP	300	162
	1404	564

*Counts taken at PMPML HQ Bus stop

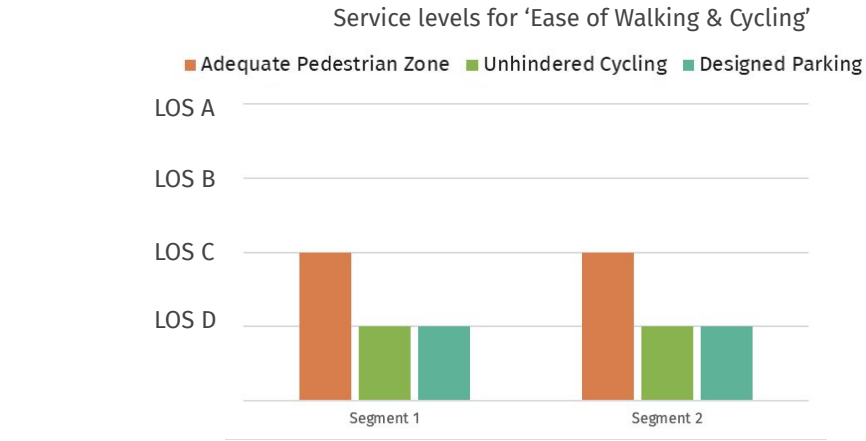
Although 80% of the street has some footpath, lack of continuous, wide, obstruction-free and even surface discourages people to walk on footpath.

Ease of walking

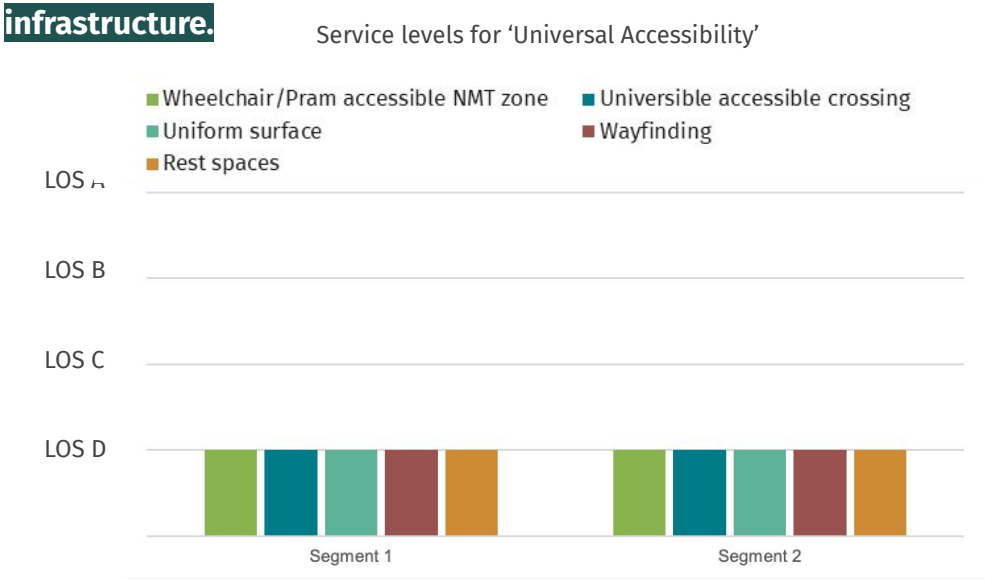
Recommendations

1. Despite narrow footpath especially near Kumar Pacific mall, pedestrian are using the footpath due to compact carriageways. Removing obstructions on such footpaths (DP boxes, uneven height of FP) can greatly improve walkability.
2. Footpath continuity can be improved by connecting the footpaths at intersections, property entrances etc. USDG section for 30-36m street should be followed.

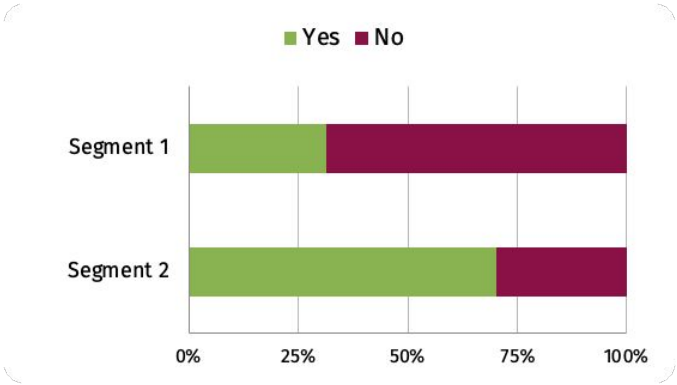
All segments fared LOS D in terms of cycling and parking infrastructure.



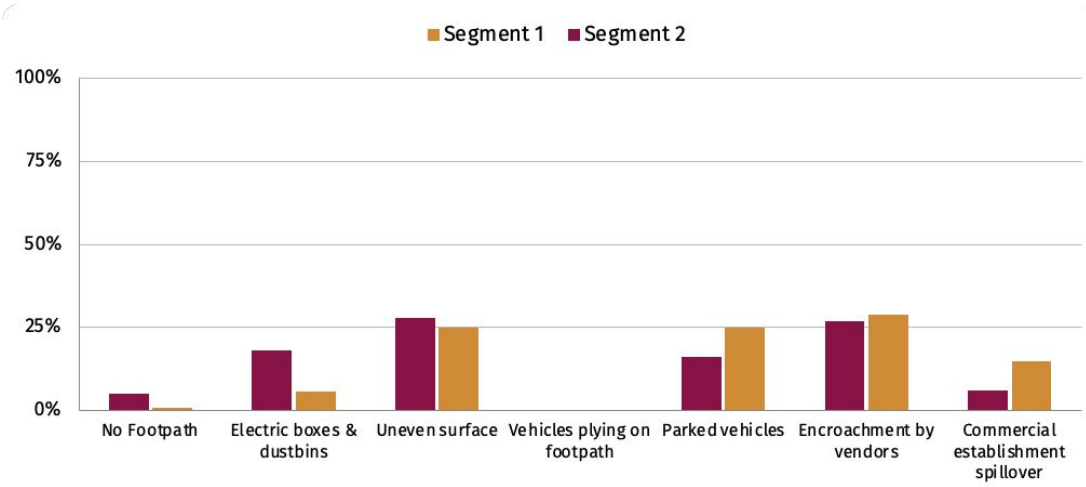
All segments lack severely in basic universally accessible infrastructure.



Around 75% of respondents felt that the footpath width (wherever footpath was available) was not adequate in segment 1 .



More than 50% respondents said commercial and vehicular encroachment to be a deterrent for walking followed by uneven surface..



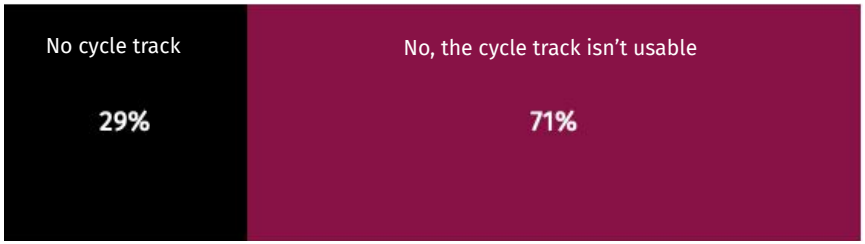
Ease of cycling

Recommendations

1. The street does not have any cycling infra which is recommended as per the Bicycle plan. At least 2m (one way) or 2.5m (two way) dedicated cycle tracks need to be added on the street.
2. At flyover landings, the tracks could be merged with painted lanes.
3. Cycle stands to be provided near malls, PMPML depots and bus stops.

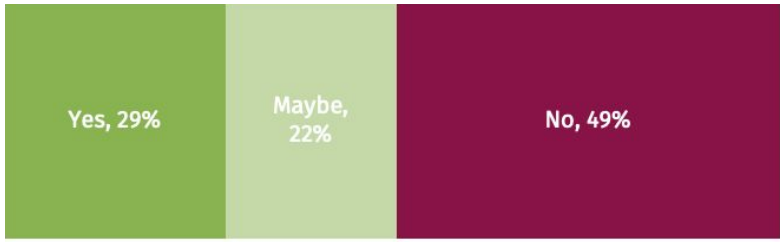
The entire street doesn't have an usable cycle track as per respondents. The main reason being unavailability of cycling network and encroachments.

Do you use the cycle track?



Amongst the people interviewed, more than 50% will consider cycling for shorter trips, if better cycling infrastructure is created.

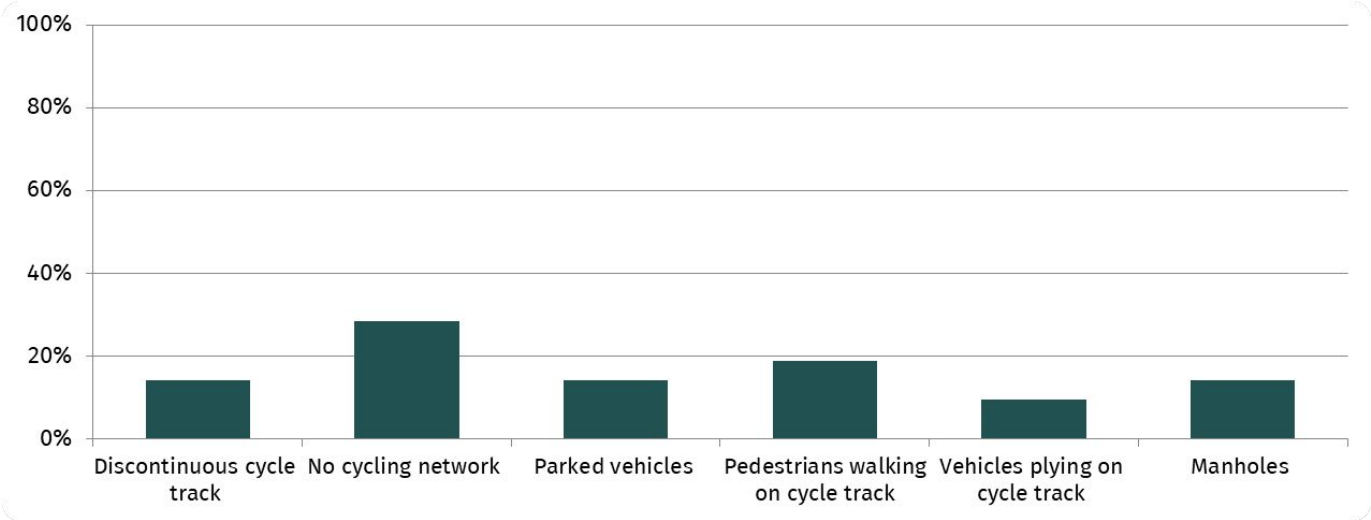
Would you cycle for shorter trips if the right infrastructure is provided?



Nearly 50% of cyclists responded that the cycle track was either discontinuous or absent.

More than 50% of them felt that they were hindered by pedestrians or commercial encroachment.

What obstructions do you face while cycling?

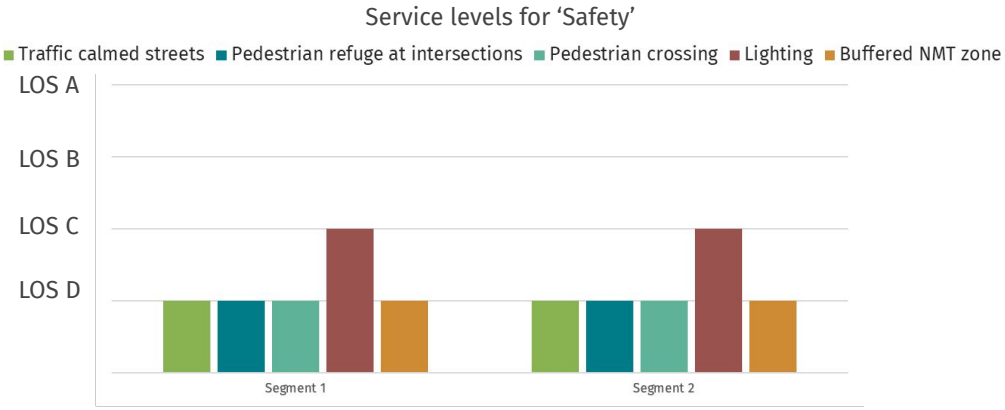


Safety

Recommendations

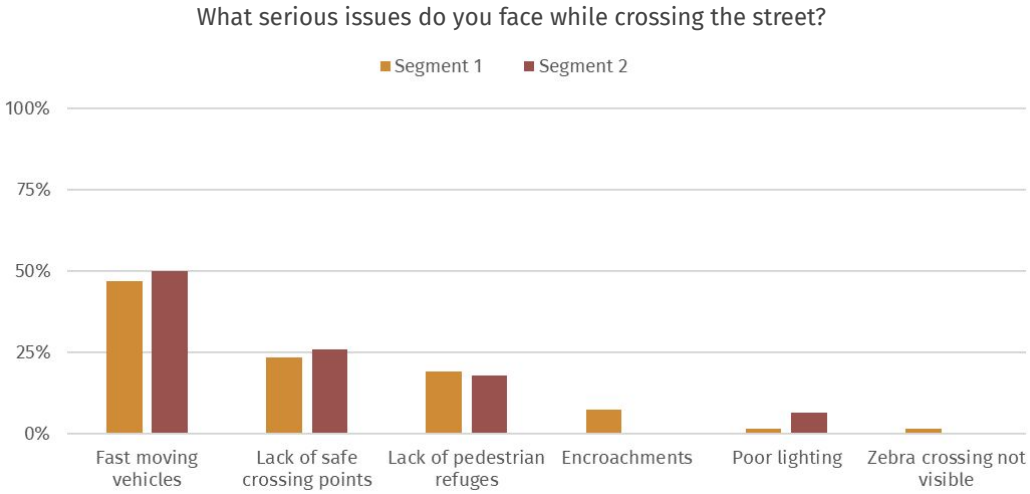
1. Huge junction without safe waiting spaces pose a serious threat. Pedestrian refuge, compact junctions and pedestrian signals are urgently required to improve the safety of the street. Pedestrian lighting needs to be improved on priority.
2. Fast moving vehicles and lack of crossing points is another issue which can be tackled with traffic calming measures, and table top crossings at regular intervals of 100-200m.

All segments fared poorly in safety and need to be redesigned for the same.

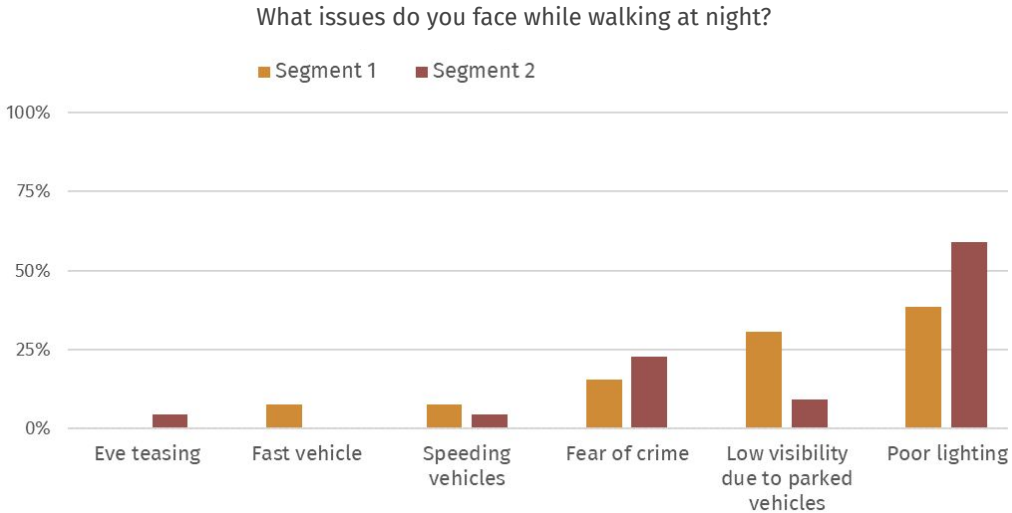


Nearly 60% did not find the street safe for children to walk unsupervised.

Nearly 80% felt that fast moving vehicles & lack of safe crossing infrastructure was a serious issue.



Of the people who had used the street at nights, around 50% of them felt unsafe at nights due to poor lighting.



V Recommendations

1. Design Recommendations

Streets with very poor rating (below 15), should be redesigned & restructured completely.
Streets with a rating of 10 to 20 would require repairs to improve continuity of footpath & cycle tracks, remove obstructions and introduce safe midblock crossing infrastructure.
Street with a rating of 25 or more, can be improved through strict enforcement and minor repairs and interventions.

For ease of walking:

i. All streets must be designed as per **Pune Street Design Guidelines**.
ii. Mid-block crossing should be at-grade or table-top.
iii. Footpath continuity should be maintained throughout - as mentioned in the Pune USDG and IRC.
iv. To maintain uniformity and quality in design, materials mentioned in the **PMC Road Department SOR** should be used.
v. **Street should be designed for comfort** through elements which provide shade, opportunities to rest, pause and play.
vi. **Multi-utility zones** should be created to accommodate DP boxes, garbage bins, seaters, bus stops and parking.

For ease of cycling:

vii. Street should be designed as per recommendations in the **Pune Bicycle Plan.**
viii. **Cycle track should be segregated** from footpaths and preferably having a level difference with footpath; or at-grade with carriageway but segregated by kerbs.
ix. Streets designed with **cycle lanes** should be demarcated with bright colours, and enforced to avoid encroachment.
x. Many cyclists have mentioned that **closely spaced bollards** are a hindrance while cycling. Bollards could be placed at the entry/exit and avoided along the length of cycle tracks.

For road safety:

xi. Black spots and potential crash spot junctions should be made safe by creating **compact geometry.**
xii. All major junctions should be installed with **pedestrian signals, with safe pedestrian refuges.**
xiii. **Area level School zone plans** should be implemented permanently with all the recommendations and scaled up to all parts of the city.
xiv. **NMT zone should be designed with a buffer** wherever possible (preferably through landscaping and planting bushes)
xv. Midblock crossings should be **table-top and designed with bulb-outs on streets** on major streets..
xvi. **Signages** should be installed at all locations as mentioned in the IRC.
xvii. Streets with higher reported **vehicular speeds should be traffic calmed** by using rumbler strips, speed tables, speed breakers and/or relevant traffic calming measures.

2. Maintenance & Repair

Many streets failed due to lack of maintenance, debris on footpaths, garbage dumping, poor condition of materials, faulty signals and signages, etc which discourage people from using the existing footpath.

i. All streets should be inspected regularly for all **surface quality and utilities.**
ii. Identified critical repairs affecting **footpath accessibility and continuity** should be done on priority.
iii. PMC should respond and act upon **citizen's complaints** swiftly. The road maintenance Vans should be made operational again.

3. Enforcement Recommendations

2-wheelers and autos were seen speeding on Cycle tracks and even footpaths on many streets. Wrong side driving and lack of lack of following traffic rules at junctions have resulted in many accidents. Parking on footpaths, encroachment of commercial shops hamper the accessibility and walking experience.

i. **Enforcement** should be increased to remove encroachments from footpaths & cycle tracks.
ii. Active enforcement to **manage parking** should be employed as per the parking policy.
iii. **Active surveillance** should be employed at junctions for **traffic violators.**

4. Administrative Recommendations

Some issues like lack of integrated networks, access to public transport, last mile connectivity, Parking management, etc would require strong decision making and unified approach.

i. **Bicycle Plan** should be incorporated in the Development Plan as notified by the state government. This will help create the desired dense network of cycling facilities.
ii. Street design decision should be made in conjecture with **Pune Metro, PMPML, PMRDA and other concerned agencies.**
iii. Since streets in the **Pune Streets Programme** have scored better, it should be scaled up to other parts of the city by budgeting appropriately.
iv. **Parking Policy** should be implemented initially on the re-designed streets by creating Area Level Parking Plans, and appointing on-street parking operators.

Prepared for Pune Municipal Corporation by