

# BASELINE ANALYSIS OF Infant, Toddler, Caregiver Friendly Mobility for Pune

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# Introduction

In Pune, 0.5 million children are between 0 to 6 years age comprising of 13% of total population.<sup>1</sup> Infant, toddlers (young children), and their caregivers are usually neglected vulnerable group in urban mobility. Understanding their mobility needs and retrofitting existing mobility plans will allow them to safely move anywhere in the city and can also support the mobility needs of all users. Cities need to provide safe, inclusive, accessible, clean, convenient, resilient, and playful urban mobility and encourage people to shift to active and public transport through focused policy interventions.

Pune consists of different neighbourhood characteristics such as core city area, peripheral area, formal, and informal settlements. This report aims to analyse the existing mobility conditions of across entire city through visual narrative showcasing types of neighbourhoods, infrastructure of streets, transit services and public spaces. It captures mobility conditions of children and caregivers on major thoroughfares, neighbourhood streets, non-motorized transport network. It also showcases existing access to different types of public spaces where young children often visit such as city level public spaces, neighbourhood level parks. The report discovers mobility scenario at major transit nodes of Pune as well as narrows down to neighbourhood level transit stops and its accessibility. This report is intended to provide a baseline of mobility scenario in Pune for of infants, toddlers, and caregivers (ITC) so that appropriate measures can be adopted in design and planning of urban mobility to improve their mobility. It will help achieve the larger vision of enabling young children and caregivers to travel anywhere in the city with safety and comfort.

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# 1. What mobility related infrastructure and services does Pune offer ?

Pune city has seen major transformations over the last few decades reflecting the global trends of development. Being a hub of educational, scientific and development institutions, it has seen massive inflow of people across the world and thereby developing its infrastructure at a rapid pace to serve the growing metropolis's needs.

The Pune Municipal Corporation expanded its boundary recently in 2021, making it one of the largest corporations in the state. The city has distinct characteristics of neighbourhoods which includes numerous peths of old city, quaint residential lanes, the cantonment and Camp area established by the British, and the new suburbs with rising opportunities of employments. Old city area is populated with dense urban fabric, narrow streets, with many government and institutional offices. Pune has 23% of its population living in informal settlements.<sup>2</sup> City offers road connectivity through 1400 km road length and has 100 km of NMT friendly streets, 400 km of cycle friendly streets.<sup>3,4</sup> In terms of bus service, 2221 PMPML bus stops are located across the city out of which 10% of Transit stops area is shaded with tree cover.<sup>5,6</sup> Covering over 33 km, the first phase of the Pune Metro comprises two corridors connecting PCMC and Swargate, and Vanaz and Ramwadi. Garware college to Vanaz, 12 km of the Metro became operational in March 2022.<sup>7</sup> For a city of its size, Pune has very few city-level public parks and gardens, most of which are in the central area and not in suburbs. Major parks and public spaces in the city are Saras baug, Sambhaji udyan, Shahu udyan, Peshwe udyan and Katraj zoo park. Old Pune's residential areas have many neighbourhood parks but new villages added in PMC limits lack these designated parks. There are various protected natural reserves and hills within Pune, which act as extended public spaces for citizens.

Kids friendly streets

Formal residential area

Public b



An overview of the city

bike sharing

• Upcoming metro station

• BRTS stop

• Informal settlement

• Designed bus stop

• Shaniwar wada city attraction

• J M road complete street



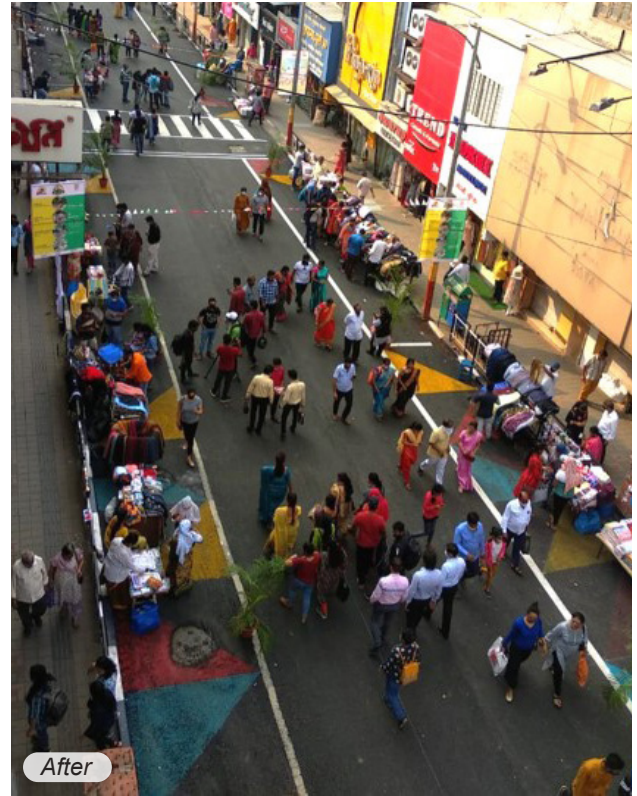
## 1.a. Residential area

### Core city area - Case of Laxmi road

Core city area, also known as Peth area, is mixed-use development with residential buildings on a main spine road and hosts a variety of commercial activities on the ground floor. Usually bustling with shopping, this core city with a congested traffic routes sees considerable pedestrian footfall all year round.

Laxmi road known for its bazaars, is often frequented by families along with young children. The street is a typical example of peth area seeing large number of vehicles, illegal parking leading to continuous traffic jams and congestion. In response to the dire situation, PMC and NGOs launched initiatives such as 'Pedestrian's Day' to reimagine the neighbourhood for pedestrians and provide a lively, safe, and healthy walking experience. As envisioned in Mobility Plan, this area is planned to be pedestrian-only zone, but there is a need for bold approach to realise this vision. Low emission zone, green buffers and NMT mode choices can initiate safer mobility in such areas.





## Formal residential area

In Pune, formal residential areas have gated societies of bungalows, mid or high-rise apartments surrounded by daily needs retails. Somewhat shaded, safe footpaths are seen around these areas with constant presence of young children with families. Older residential areas such as Kothrud are well shaded but see heavy parking along streets which restricts movement at times. Whereas, in suburban residential areas such as Hadapsar, Viman nagar, new infrastructure is being built but lacks lively, safe, well-lit, shaded footpaths for family-oriented mobility.



1. Seamless shaded wider footpath with green buffer

In many cases, high compound walls of residential societies create dead edges and less active street fronts leading to poor pedestrian experience for families. Porous, interactive edges, if created, can improve perceptions of street users.



2. Active streets as result of mixed use development

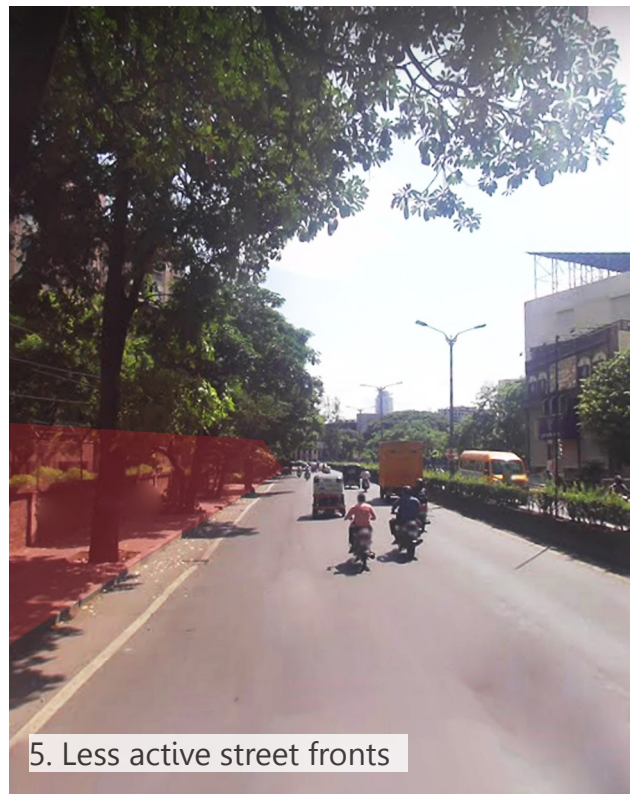
1,2 Image taken from Sus Pashan neighbourhood

3. Photograph from Baner Pashan link road

4. Image taken from road connecting to Magarpatta

5. Photo from Hadapsar main road





## Informal settlement

Informal settlements of Pune are spread across the city in small lot sizes. They are densely populated with poor built conditions and lack of designed streets within it. These result in formation of narrow lanes with inadequate infrastructure, and unhygienic living conditions. Many hill slope areas of Pune have informal vastis such as Parvati paytha and are extremely vulnerable to disasters.

Caregivers and young children living in these areas are most vulnerable and often seen dangerously maneuvering the lanes to reach nearby services. Streets act as spillover spaces where children are often seen walking, playing alongside moving vehicles, at risk to vehicular pollution, exposed utilities or garbage dumps. Leveraging existing schemes such as SRA (Slum Rehabilitation Authority) to develop these neighbourhoods with formal housing and provision of streets and essential services may improve mobility.

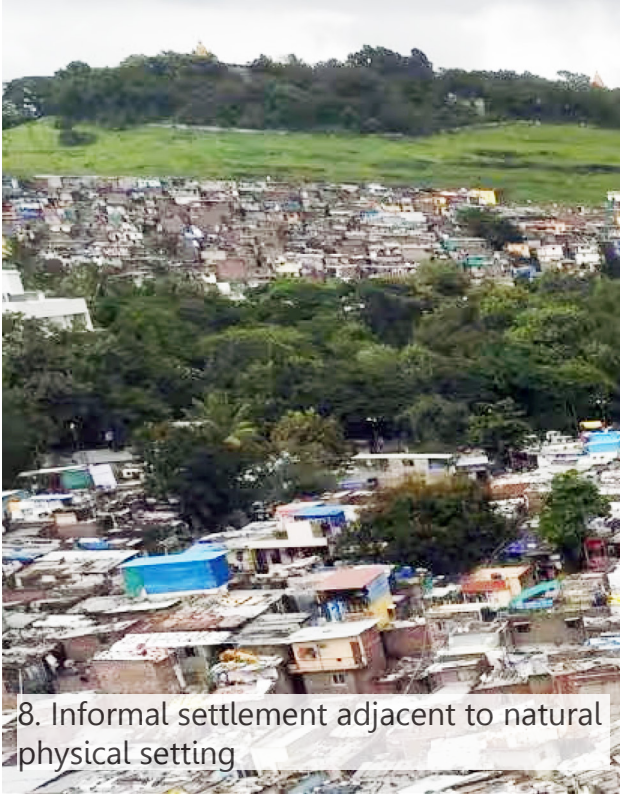
6. Image taken from Vidhate vasti in Baner  
7. Photograph from vasti near Aundh  
8,9 Source: Image of informal settlement at Janta Vasahat <https://www.hindustantimes.com/pune-news/pmrda-to-conduct-survey-in-slum-areas-Jun-26,2018.html>  
10. Photo from Bhavani nagar, Kothrud  
11. Photograph from vasti near Aundh



6. Streets as an extension of the social structure



7. Narrow streets as play area



8. Informal settlement adjacent to natural physical setting



9. Unhygienic, risky streets



10. Encroached street space with no pedestrian safety



11. Unhygienic, risky streets

## 1.b. Streets

### Model streets of Pune

Pune has implemented several pilot streets which demonstrates urban design principles of Complete streets, NMT-friendly elements and active frontages.

Pilot stretches of JM road, FC road, Aundh ITI and DP road were developed for providing safe, interactive environment for all users, including children. Due to many interactive spaces, children and families use them regularly and they act truly as public spaces for them. These streets offer wide and continuous footpaths, interactive seating, shading and vegetation, play opportunities, cycling spaces, wayfinding signage and dedicated parking.

Pune's Urban Street Design Guidelines is now serving as a guidance for all streets to be retrofitted and designed to become safe and inclusive for all. .



12. Vibrant, shaded footpaths with green buffer



13. Safe, wide walkway integrated with play area and seating for resting

12. Photograph from JM road

13. Photograph from Aundh ITI road

14. Image taken from Vitthal Tukaram  
Bhosale Chowk (JW Marriott Junction) on  
SB road

15. Photo from Lal Bahadur Shastri Road

16. Photograph from Jhansi Rani Laxmibai  
Chowk on JM Road



## Neighbourhood street

Most of the neighbourhood streets of Pune are either partially retrofitted or newly developed based on Pune Urban Street Design Guidelines having wide and continuous footpaths, bollards, lighting and road markings and signages. A seamless network of such streets is yet to be developed in various parts of the city.

Often, caregivers are seen using streets for resting on the go, waiting outside children's facilities or even socializing with others. Core city areas having narrow streets does not offer model street-type of comfort and convenience but feel safe at all times of the day. Whereas major/arterial streets connecting neighbourhoods feel unsafe due to speeding vehicles and no safety for walking and crossing. Sub-arterial and collector streets see bustling commercial activities and therefore provide active frontage. But parking encroachments on these streets restrict caregivers and children's mobility.

17. Photograph from Dhotre Path, Model colony

18. Photograph from Model colony, Pawar road

19. Image taken from Prabhat road

20. Photo from Model colony neighbourhood street

21. Photograph from streets on Baner Pashan link road



17. Comfortable streets with resting opportunities



18. Narrow streets with natural shade



19. Dedicated on-street parking



20. Designated raised footpaths



21. Dilapidated, broken footpath restricts movement

## Streets in peripheral areas

Many underdeveloped areas on the outskirts of Pune are recently added into the PMC boundary. Even though these areas are connected with city centre with a network of streets, they lack quality infrastructure for all types of users, especially young children and women, specially abled persons. These streets have wide ROW (right of way) but are not designed yet to demarcate vehicular, pedestrian and other street spaces.

The mobility baseline in such areas is currently at a very infant stage, but can be truly improved with new, well-thought design and planning. Caregivers and children living in these areas often rely on private vehicles to reach city centres for services and employment. At present, absence of infrastructure creates chaos in movement thereby leading to long, unsafe commute.



22. Photograph of street on Sus main road

23. Image taken from IPT stand on Sus main road

24. Image taken from Sus gaon road.

25. Photo from Kondhwa gate, NDA road

26. Photograph from streets on Uttamnagar, NDA road





24. No demarcation of spaces in ROW



25. Encroachments forcing to walk on vehicular lanes



26. Lack of pedestrian walkways, crossings

## 1.c. Transit stations

### Metro

Newly developed Metro service is a mass public transit service which is currently in the development phase. It aims to provide last mile connectivity with seamless integration of various modes of public transport and IPT. Metro Stations of Pune Metro Phase-I are well connected with various adjacent localities by city bus services. Each station provides infrastructure with universal accessibility as per USDG guidelines.

Developed and upcoming metro station designs consider the needs of ITC and provide infrastructure like priority seating with the coaches for comfortable commute experience and feeding booth and diaper changing room at station.

Currently metro station are under functioning and faces ridership issue due to lack of complete developed network.



27. Image taken Nal stop, Karve road

28. Image taken from bus stop at Karvenagar

29. Photo taken from Garware metro station

30,31 Photograph from Anand nagar metro station

32,33. Photograph from Vanaz metro public concourse



29. Seamless connectivity through lifts and ramps



30. Shared footpath and cycle track with green buffer and proper signages



31. EV charging points



32. Provision of ITC services through ramps



33. Priority seating for ITC

## City bus stations

City provides wider connectivity through public transport. Bus stations caters to large footfall on daily basis. Yet the stations are not well designed and developed. There is no proper access point to the stations.

Lack of enforcement in this high footfall zone leads to chaotic condition. Raised platform for the segregation from vehicular movement and pedestrian movement with better infrastructure is required for young children caregivers travelling intercity.

These stations also lack essential caregiving services such as feeding booths, health kiosks and hygienic family restrooms.



34,35 Image taken at Swargate bus terminal

36. Photo taken at bus stop near Pavillion mall, Senapati Bapat road

37. Source : <https://www.hindustantimes.com/pune-news/Dec 21,2018>

38. Source : <https://timesofindia.indiatimes.com/for-the-brts-in-pune.html>

## Bus stops and BRTS

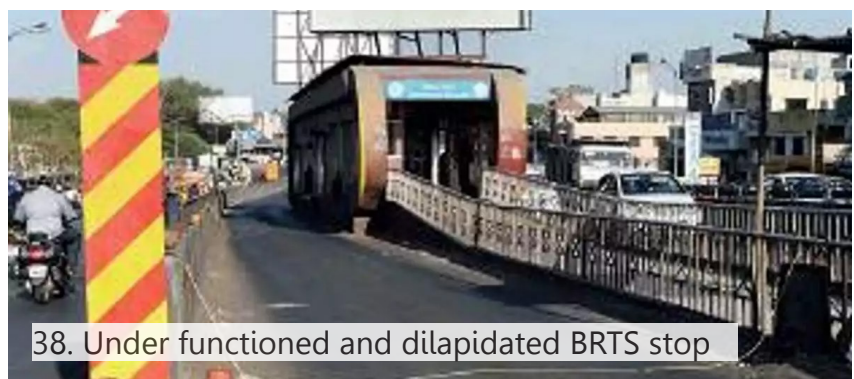
Pune operates fifth largest urban bus fleet and largest electric bus fleet in India.<sup>4</sup> Formation of PMPML lead to efficient and seamless services across the city. Recently PMPML has migrated their bus fleet to all CNG and electric bus fleet as a step towards clean transportation. PMPML has launched Tejaswini buses exclusively for women to ensure comfortable and safe travel for women. It also offers 50% waiver to all female riders across the services. Currently bus designs lack low floor to board, dedicated priority seating for ITCs resulting into uncomfortable travel experience. Very few bus stops across the city are either partially retrofitted or newly developed based on Pune Urban Street Design Guidelines having shaded waiting area, seating spaces, children play area adjacent to stop, wide and continuous footpaths, bollards, lighting and road markings and signages. Such well designed bus stops are yet to be developed in various parts of the city. City also cater to 60 km long BRT corridor but due to lack of operation and maintenance, it is facing resistance from citizen groups and various government departments.<sup>8</sup>



36. Defined street elements - Bus stop, cycle lane, footpath, shaded streets



37. Female bus service



38. Under functioned and dilapidated BRTS stop

## Intermediate public transport

For last mile connectivity city offers dedicated auto stands. Survey results shows that 63% of the caregivers get IPTs easily available across different neighbourhoods in the city.<sup>9</sup>

Pune had launched women centric auto and the motive was to create a source of income for women. This resulted into positive outcome due to presence of females in IPTs for female commuters and caregivers.

6 seater TATA magic or “tam tam” is functional across the peripheral areas of the city, offering affordable transport option to city center. Though there is availability of IPT with well maintained vehicles, it lacks network level operations and management.



39. Dedicated auto stand



40. Caregivers using Tata magic or “tam tam” in peripheral area

39. Image taken at Parihar chowk, DP Aundh road

40. Photo taken from IPT stop at Sus main road

41. Image taken at Dr. Homi Bhabha, Pawar road

42. Source : <https://timesofindia.indiatimes.com/women-auto-drivers.html>



41. Auto stand in the neighbourhood



42. Women auto drivers

## 1.d. Public spaces

### Citywide public spaces

Citywide public spaces are well connected with public transport and IPTs. It caters to large population of young children and caregivers in the city. Such public spaces are well maintained and safe. Yet it lacks proper planned designed space at the interface.

The street adjacent to such large public spaces houses various activities throughout the day. But they fail to provide well-designed dedicated vending spaces, convenience facilities, sufficient waiting spaces and basic, safe infrastructure around the public spaces.

Lack of well defined entry and exit, organized multi utility zone, and wayfinding results into haphazard temporary developments.



43. Lack of well designed pedestrian plaza in front of public places



44. Lack of safe pedestrian crossing

43. Image taken at entrance of Rajiv Gandhi Zoological park

44. Photo taken from Chatushringi Temple entrance

45. Image taken from entrance of Sarasbaug, Sarasbaug road

46. Photograph from Sarasbaug entry gate





## Neighbourhood public spaces

Neighbourhood parks and public spaces such as tot-  
lots and gardens have direct  
and good connectivity  
from footpaths. These  
areas create vibrancy in the  
neighbourhood and cater  
to larger number of ITC  
population.

Though city offers  
such pocket parks in  
neighbourhoods across the  
city, it lacks its usage  
to its full capacity. These  
well developed parks are  
functional only on special  
occasions or on events  
organized by corporations.



47. Seamless connected footpath with safe crossing



48. Lack of well defined entrance

47. Image taken at Renew smart city  
park, Baner

48. Photo taken at Nalla garden, Mitra  
mandla chowk, Parvati Paytha

49. Photograph from entrance of Traffic  
plaza at Bremen chowk

50. Image from Shani mandir, Pawar road



49. Interactive neighbourhood park



50. Encroachment on footpath and lack of continuous footpath

## 2. Observations

This sections notes observations on each category illustrated in previous section through five objectives of Infant, Toddler and Caregiver-friendly mobility - Safe, Accessible, Green, Inclusive and Playful. Baseline of these 5 objectives is established to understand where the city stands from the lens of young children and caregivers and where the scope is available to improve.



Objectives for Young children-friendliness in mobility planning

### Residential area

**Core city area**    

Densely populated, mixed-use, vibrant and close knitted area with rich in culture, heritage and comfortable built environment. It lacks in open and green spaces but feels inclusive as streets narrow and safe thus shared by all for transit, business and leisure as public spaces. Attractive destination for local shopping, festive and cultural events.

**Formal residential area**    

Neighbourhoods with small gated communities having private amenity apartments and segregated land use of live work play zones connected with wider city street networks which attracts speed. Wider streets need special design treatment to make it safe, accessible and comfortable for all. Street stretches with dead edges due to compound walls and poor lighting conditions are often a concerns of safety. Open spaces and public amenities are usually not maintained.

**Informal settlement** 

Densely populated and unplanned settlements within the city on encroached public or restricted

lands. Unhygienic living conditions due to poor built environment, lack of green open spaces and basic public amenities. Narrow streets within the settlements acts as only community spaces where kids play and interact but are also encroached by parking making them unsafe. Anganwadis are present in many informal settlements.

### Urban peripheral area

Large land parcels with private amenities developed sparsely in the fringes/ periphery of the city as exclusive large gated communities which are accessed through wider city road networks. They are considered self sufficient within but are not safe and inclusive in nature nor they are accessible to all. Connectivity road are often underdeveloped and unsafe due to poor street infrastructure and longer dark and dead edges. Streets in Pune are mostly USDG compliance but priority to vehicle and speed is observed on such connectivity roads and thus feels unsafe.

### Streets

#### City street

City streets are designed on Pune Urban Street Design Guidelines based on equity. Recently developed city streets are USDG compliance having wider and continuous footpath, cycle infrastructure, vegetation and landscape, shade and street furniture and seating spaces, play and rest spaces, dedicated parking bays, road marking signages. Well designed city streets are inclusive, safe, accessible, green and playful. But not all the city streets are developed like this due to high traffic congestion and demand for more space for vehicle. Junctions are not designed and thus are unsafe.

#### Neighbourhood street

Neighbourhood streets are partially retrofitted and developed based on Pune Urban Street Design Guidelines having wide and continuous footpaths and bollards, shade, road markings and signages. They are connected within the network of green open spaces like gardens and public amenity spaces. Safety at crossings are needed to be improved. Lacks Play and rest spaces.

#### Peripheral street

Peripheral streets are partially developed with basic amenities only and mostly under developed based on Pune USDG. These peripheral streets are connected to large gated communities and townships thus mostly motor oriented wide roads which feels unsafe due to dark and dead edge conditions.

## Transit Stations



### Metro station

Metro service is a public transit service which is currently in the development phase and some stations are developed having better inclusive convenient facilities for ITC groups like feeding spaces, diaper changing place, safe boarding and alighting, security. It also has some play spaces for kids.

### Bus station



Bus stations are not well designed and developed as commuter as there is no proper access point to the stations and has to walk on bus movement area to board the buses. Mostly the buses are operated on fossil fuel and the commuters are exposed to emissions especially it is hazardous to infants. The washrooms are not well maintained. There are rest spaces for the commuter but playful spaces are not there. ITC convenient facilities like feeding booths and diaper changing place are not available.



### Bus stops

Bus stop are not well placed and designed. It lacks with good shade, resting and seating spaces. Even no lighting for evening and night time which makes it unsafe. Bus stops must have placed and designed well such that it is inclusive, accessible, safe. Buses do not stop near the footpath and due to that it becomes have high level of boarding at doors making is difficult for the ITC groups to board. It lacks with wayfinding maps as well. Most buses are green due to the use of cng and electrification. Many stops do not have bus stops especially in the peripheral area.

## Public spaces

### Citywide public spaces



Citywide public spaces like city gardens are well maintained and safe for all good having ITC friendly access points. They have ample of play and rest spaces. Some ITC convenient facilities are not available like feeding booths and diaper changing facilities.

### Neighbourhood public spaces

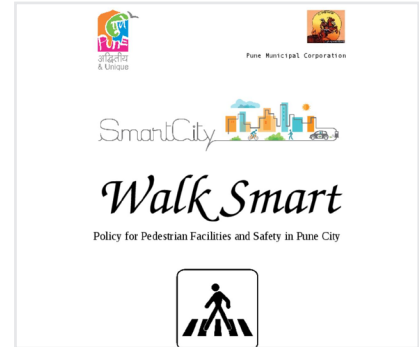


Neighbourhood public spaces like gardens have good accessibility from footpaths but are mostly not maintained and poorly designed. The edge condition of such spaces have high scope of design for ITC. Play zones and equipments are not maintained and are mostly closed since covid. Such spaces are mostly restricted access time and are not open through out.

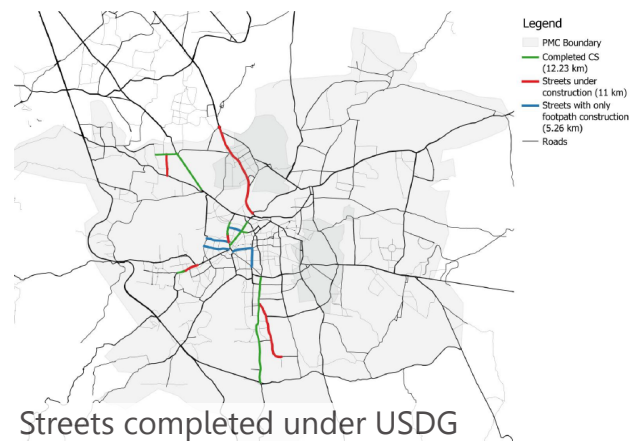
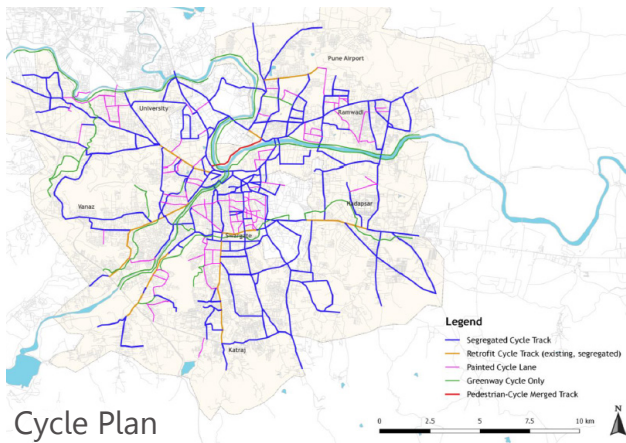
### 3. Enablers for Pune to adopt ITC-friendly mobility

Pune has already taken steps to improve walking and cycling experience in the city. This is achieved by adoption and implementation of various policies, non-motorized transport (NMT) friendly plans, and street design guidelines, along with transforming the streets through various street design initiatives. Following are some of the key actions that are conducive to adopt ITC-friendly mobility for the city.

- Adoption of Pedestrian Policy to focus on pedestrian issues in the city and develop infrastructure prioritizing pedestrians over vehicles to promote walking and cycling.
- Adoption of Urban Street Design Guidelines to regulate and ensure safe, healthy and inclusive streets for all street users, to provide consistent, high quality street network with equitable allocation of road space in the future development.
- Under Pune Streets Program, Pune has planned 100km of NMT streets of which 25kms are completed.
- Pune has developed Comprehensive Cycle Plan for the city that promotes cycling as sustainable and friendly mode of transport for all users.'
- Pune has MoU with philanthropies such as BvLF and has undertaken Urban95 program to work on young children and caregiver-friendly initiatives across the city in different domains such as children's facilities, streets and public transport.
- Pune offers favorable governance ecosystem where decision makers and officials are open to ideas that enable people-oriented development.
- To promote and sensitize people towards importance of Pedestrian safety, PMC celebrates Pedestrian Day on 11th December every year. This day sees various initiatives prioritizing pedestrians over vehicles by implementing no vehicle zones, children priority zones and open street events across different wards.
- Pune published Walking Happiness index in 2021 to rate the city streets by people in terms of how safe, happy they feel using it.
- Pune has recently undertaken School Travel Improvement Plan which focuses on children's safe commute to their educational centres, including anganwadis and pre-primary schools.
- Pune's Comprehensive Mobility Plan (CMP) set the goal that by 2031, over 90 per cent of all trips happen by non-motorised transport (NMT) and public transport and to achieve sustainable development goals several initiatives are taken.







## 4. Key findings

1. Most of the streets have 'provision of footpaths and cycle tracks'.
2. Deterring factors for young children and caregivers while using the footpath are - encroachment on streets, inadequate uniform width, poor infrastructure maintenance, lack of shaded footpath, well designed street and security concerns. Due to this majorly ITCs are forced to walk off the footpath and on road and cycle tracks.
3. High floor bus creates discomfort for caregivers while boarding and alighting.
4. Lack of presence of women police and conductors on road and in bus.
5. Lack of convenience facilities for caregivers with young children such as family restrooms, feeding booths, health kiosks.
6. Lack of availability of multiple options for last-and first-mile connectivity across the city.
7. Insufficient administration, operation and functioning across all government agencies.

## 5. High level recommendations

1. There is need to develop wide footpaths with resting areas, restrooms and vending spaces on streets to aid young children and caregivers' mobility.
2. Complete network of continuous, well-lit and shaded pedestrian infrastructure.
3. Road safety through safe crossings and junctions
4. Strict enforcement against illegal parking, two-wheelers on footpaths will improve safety for ITCs.
5. There is need to develop mandatory bus stop design guideline.
6. Budget allocation across various government agencies to retrofit ITC lens into existing system.
7. Sensitize public by increase public awareness of traffic regulations and vulnerable users needs through social media and digital messages in public transport.
8. Retrofitting play areas and interactive elements across the streets.
9. Network-level planning considering ITC travel patterns and peak hours.
10. Low polluting and well-maintained public transit vehicles.

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