

Infant, Toddler, Caregiver Friendly Mobility Planning Toolkit

Bernard van Leer  Foundation

 URBAN
95+

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Founded in 1949, the Bernard van Leer Foundation (BvLF) is a private foundation focused on developing and sharing knowledge about what works in early childhood development. It provides financial support and expertise to partners in government, civil society and business to help test and scale effective services for young children and families. Urban95 is the Bernard van Leer Foundation's 30 million euro initiative to make lasting change in the landscapes and opportunities that shape the crucial first five years of children's lives. BvLF has supported programs in India since 1992. <https://bernardvanleer.org/>



Urban95 is the Bernard van Leer Foundation's initiative to incorporate a focus on the needs of young children and those who care for them into city design, planning, and management. It asks a simple but bold question: "If you could experience a city from 95cm - the height of a 3 year old - what would you change?"



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Executive Summary

India is home to largest number of children in the world. As per Census 2011, nearly 138 million children in India are in the age group of 0 to 6¹. These infants and toddlers are dependent on their caregivers for moving around the city while accessing various services. Their specific needs are different than that of an average adult.

This toolkit aims to encourage cities to prioritize mobility planning from the lens of young children and families. The program aims to incorporate needs in design and planning of urban mobility to enable them to travel anywhere and everywhere in the city with safety and comfort. It also outlines how positive behavioural change in policymakers, frontline staff and caregivers can establish long-term improvement in ITC-friendly mobility.

The toolkit is essentially a guidance document for creating 'ITC-friendly Mobility Plan' for the city. It provides a range of resources to support local governments, public transport agencies, urban practitioners and civil society to understand the situation of ITC mobility in cities, planning of ITC-friendly mobility interventions, and measure their impact. A step-by-step guidance has been given to identify priority areas and propose relevant solutions.

The toolkit is prepared based on the learnings from lighthouse case study of Pune city for which similar ITC-friendly Mobility plan has been prepared. Indian cities with a long-term vision of inclusive development are recommended to use this toolkit and refer to Pune Plan as a case study.

Abbreviations

AVL	Automatic Vehicle Location
BRTS	Bus Rapid Transit Systems
CBD	Central Business District
CSO	Civil Society Organisations
ECD	Early Childhood Development
GDCI	Global Designing Cities Initiative
GoM	Government of Maharashtra
FGD	Focus group discussion
IPT	Intermediate Public Transport
IRC	Indian Road Congress
ITC	Infant, Toddler and Caregivers
ITS	Intelligent Transport System
MoHUA	Ministry of Housing and Urban Affairs
MoRTH	Ministry of Road Transport & Highways
NACTO	National Association of City Transportation Officials
NGO	Non-government Organisations
NMT	Non motorised transport
PMC	Pune Municipal Corporation
PHC	Primary Health Centre
PT	Public Transport
SOR	Schedule of rates

Definitions

ITC - ITC is an abbreviation of Infant, Toddler, and Caregiver. 'ITCs' come in all kinds of combinations of ages and genders. The term refers to a grouping of at least two people, the youngest of whom is under five years old. The caregiver is not necessarily a mother or father- or at least, not only. Caregivers might be a nanny, older sibling, grandparents, aunt or uncle, either alone, or accompanying the mother.

ITC Destinations - Land uses, destinations, and services in the city that are often visited by infants, toddlers, and caregivers. These may be visited primarily for the purpose of infants and toddlers or may be frequent destinations of caregiver trips where infants and toddlers accompany them.

ITC Priority Mobility Zones - Mobility infrastructure and services that ITCs frequently use to access ITC destinations in the city. These zones are a combination of publicly operated and privately operated mobility services and infrastructure such as streets, public transport stations, bus stops as well as IPT stops including shared auto rickshaw or taxis.

ITC Mobility Plan - ITC Mobility Plan focuses on mobility infrastructure and services addressing ITC needs to allow them to move anywhere and everywhere in the city specially to access all ITCs destination irrespective of their mode of commute.

ITC Mobility Planning Toolkit - The toolkit aims to serve as step-by-step action-oriented guidance for decision-makers, government and non-government officials, citizen groups and communities to understand ITC mobility needs and enhance existing or non-existent mobility services and infrastructure to make them ITC-friendly and accessible including retrofitting solutions. It provides key action points for identifying, mapping, analyzing, and implementing ITC-friendly urban mobility solutions at varying scales while enriching ITC commute experience through behaviour change.

Anthropometry - It is the science that defines physical measures of a person's size, form, and functional capacities. It involves taking precise measurements of different body parts, such as height, weight, and body proportions, to learn about human variation, growth patterns, and body composition. Anthropometry helps us understand how people differ in terms of their body size and shape.

Definitions

Mobility of Care - It includes all travel resulting from home and caring responsibilities: escorting others—especially children—to school, daycare, activities, etc.; shopping for daily necessities and household maintenance; managing organisational and administrative errands; trips for maintaining social and familial relationship; and visits to take care of sick or older relatives (distinct from personal recreation or leisure visits) (source: Sanchez de Madariaga, "Mobility of Care.")

Neighbourhood - Neighbourhood relates to a smaller, local community-level area with boundaries defined by similar characteristics. (e.g., Residential colony or a vasti) Whereas, zone represents a larger official/administrative boundary such as ward, sector, typically used for governance and planning.





1. Background of Infants, toddlers and caregivers' mobility

1.1 Why focus on young children and caregivers

India is home to the largest number of children in the world. Every fifth child in the world lives in India¹. As per Census 2011, nearly 138 million children in India are in the age group of 0 to 6, of which 36.6 million children live in urban areas¹. Mobility services in the city are often insufficient and inaccessible for young children and caregivers and limit their ability to move in the city to use essential health, education and social services. These future generations should be supported with thriving opportunities of cognitive learning, good health and essential services to develop their full potential. For that, our cities need to provide safe, inclusive, accessible and comfortable mobility experience for infants, toddlers, and their caregivers (ITC).



Every 12th
child in the India
lives in Maharashtra^{1,2}



1.4 million
children of 0–6-year-old
live in the informal
settlements in Maharashtra³



21
children of 0-18 year old
daily lose their lives
on Indian roads⁴

1.2 Current status of children's mobility

Many global data show that streets that are safe for children to walk, play and socialize are considered as safe for all. Unfortunately, most Indian city streets do not offer required safety and comfort for this age group. National Crime Record Bureau of India report states that everyday, 10 children (0-14 years) lose their lives on roads⁵. One of the reasons for this is decades of car-centric city planning practices supporting moving of vehicles more than moving of people. Also, a lack of consideration in mobility planning may restrict caregivers' access to

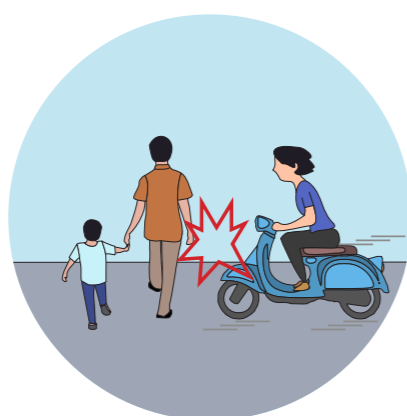
employment and education opportunities, which affects urban economic growth in the long term. Due to lack of disaggregated, gender-specific mobility data, their specific needs are often not considered in mobility policies and plans.

Research suggests that poor air quality affects young children’s health and well-being.⁶ Typically, respiratory rate of newborn is between 30-60 breaths per minute,⁷ while normal respiratory rate of healthy adult at rest is between 12 to 20 breaths per minute.⁸ Thus, a toddler breathes faster than an adult, making them more vulnerable to adverse effects of the pollution and this negative impact of air pollution starts as early as in the womb. Their mobility experience is therefore affected due to environmental stressors like air and noise pollution. Additionally, speeding vehicles, lack of pedestrian facilities and caregiver amenities and low operability of public transport add to caregivers’ anxiety while traveling with their infants and toddlers.

Research shows that as many as one million new neural connections per second are developed in babies in their initial years.⁹ These connections between nerve cells are formed each time a child interacts with people, including caregivers and the surrounding environment. Therefore, early years of a child require warm, frequent, responsive interactions with caregivers, access to pleasant public places, and freedom to safely move around. Any efforts to improve mobility through their lens will not only make the city accessible and safe for young children but also make it better for everyone.



Access to public transport



Speeding of personal vehicles



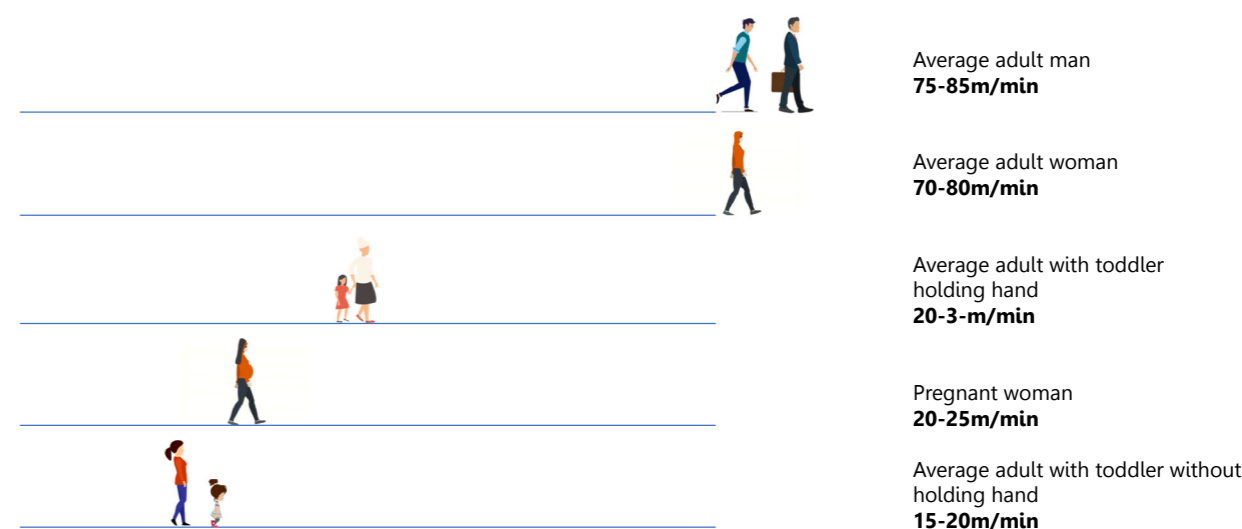
Air and noise pollution

1.3 Mobility patterns and needs

ITC mobility patterns revolve around caregivers’ travel patterns as young children of 0-5 years age are dependent on their caregivers who are typically parents, grandparents or siblings in the Indian context. Typically, their trips involve visits with caregivers to destinations like vegetable markets, grocery centers, recreational areas, workplaces, also early childhood services such as primary health centres, anganwadis, playgrounds, day-care centres, kindergartens and primary schools.

Their travel characteristics include shorter trips, slower walking speed, trip chaining to multiple destinations, frequent pauses, and off-peak travel to non-commercial destinations. Their height, walking speed and space requirement need to be considered in design and planning of streets and mobility services. For example, they often require more space on the footpath to walk comfortably and support independent walking in 3–5-year-old children. Their experience can be enhanced by providing them safe and walkable streets of neighbourhood, prioritizing active transport, multiple choice of transport modes, reliable public transport along their routes, affordable costs and allow responsive caregiving in transit.

Access around social services and associated settings must enable warm interactions with young children and their caregivers and offer a stimulating environment to encourage young children to explore and engage in the safe proximity of their caregivers. Play and interactions opportunities are important as well, since commute is sometimes the longest time spent together by children and caregivers in a day. This will boost their confidence while accessing daily destinations. The ITC- friendly mobility planning approach could be a unifying lens for sustainable, healthy, safe, inclusive, and equitable cities.



Walking speed of ITC

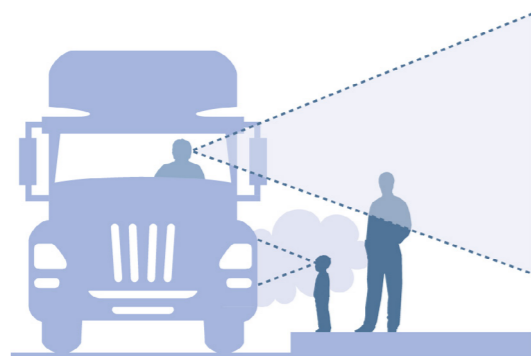
Source: WRI India



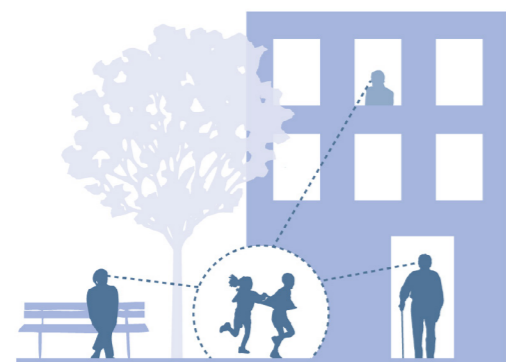
Reliable mobility choices



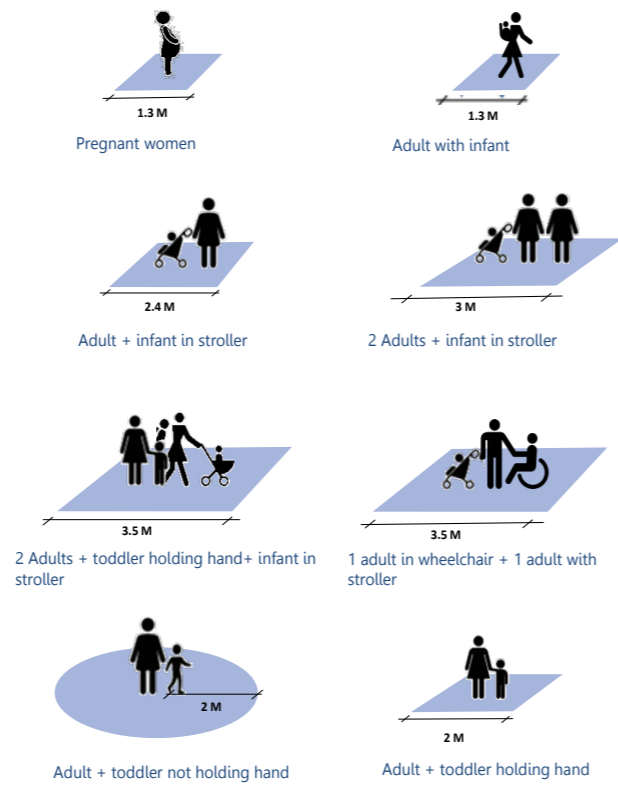
Places to pause and stay



Visibility



Security



Space



Play and learning



A safe environment

1.4 ITC friendly mobility plan

It is an action-oriented document for a city agency aiming to improve mobility infrastructure and services to make them suitable for young children and caregivers and thereby make it better for all. The plan essentially identifies priority zones in the city and outlines action points to improve mobility scenario in these zones. The plan should set a 3 or 5-year vision for achieving desired objectives by implementing on-ground solutions in priority zones. For example, Pune's ITC Mobility Plan is envisioned for 5 years to be implemented in 19 priority zones. ITC Mobility Plan is expected to be prepared by Municipal Corporations and/or Smart Cities and/or Development Authorities in partnership with other city agencies such as transport agencies, Metro authorities and traffic police. Multi-departmental and multi-agency ownership of the Mobility Plan is recommended to ensure a coordinated approach.

Source : Designing Streets for Kids, Global Designing Cities Initiative



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2. About the Toolkit

This section elaborates the need for this toolkit for Indian cities, who can use the toolkit and its direct usage and application.

2.1 Purpose of the toolkit

The toolkit is essentially a guidance resource to create ITC-friendly Mobility plan for any city. The Mobility plan shall be evidence-based, action oriented vision document for the city. And therefore, the toolkit illustrates how evidence-based approach can be taken, what type of data and analysis is required, how to ensure participatory planning and what are some of the key recommendations for city agencies to implement on-ground as part of the Plan.

2.2 Need for the toolkit

While developing city's mobility infrastructure and services, city agencies are required to follow several statutory guidelines, plans, and policies. e.g., National Urban Transport Policy (NUTP), State Urban Transport Policy (SUTP), City Development Plans, Comprehensive Mobility Plans (CMP), Indian Road Congress (IRC) codes, and local policies such as NMT policy. Although some of these statutory documents acknowledge needs of vulnerable users such as specially abled persons, many do not extensively consider specific needs of children travelling with caregivers.

This major population face multiple challenges while moving around the city for daily, essential activities such as accessing educational or health centres. Therefore, there is a need to have a dedicated Mobility Plan for the city which is prepared keeping in mind specific patterns and needs of young children and caregivers. This toolkit serves as a step-by-step guidance for cities to prepare such first-of-its-kind Mobility Plan. It is also observed that cities currently lack action-oriented guidance to improve streets, public transport and IPT services. Therefore, the toolkit includes action-oriented recommendations at neighbourhood, zonal and city level mobility network. Such type of readily available guidance can steer on-ground implementation by various agencies to improve mobility in ITC priority areas.

2.3 Who can use the toolkit?

All urban local bodies responsible for providing and maintaining mobility infrastructure such as streets and public transport can use the toolkit as a ready reference to create their own ITC-friendly Mobility Plan. Municipal Corporations and Smart City SPVs and their consultants are especially advised to use this toolkit to envision priority zone planning and formulate new programs for the city. For example, School Priority zones, Station Accessibility program.

Government agencies

- Municipal corporation officials, especially planners and engineers involved in envisioning, decision-making and planning of projects.
- Transport agencies who operate bus, metro and similar transit services in the city, especially intra-city.
- Technical consultants involved in town planning, local area planning or smart city project management.
- Traffic police managing enforcement and discipline in traffic systems.
- Development authority and regional bodies responsible for development planning, mobility planning and greenfield development .
- GIS planners who are responsible for data repository preparation, maintenance and updates.
- Middle management and frontline staff to understand how to plan priority interventions within city and what to focus on while dealing with caregivers using mobility services.

Non-governmental stakeholders

- Although this toolkit is primarily targeted for government agencies, it may also be used by academic institutions, students and design/planning professionals to understand children-friendly mobility planning practices.
- Individual experts and citizens can use this toolkit to generate demand for taking statutory steps towards inclusive, family-friendly mobility.





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3. Framework for ITC friendly mobility

3.1 Vision and Objectives

To enable infants, toddlers, and caregivers to move anywhere in the city while enriching their experience through the creation of resilient mobility systems and bringing about positive behaviour change.

 <p>Inclusive Gender Age Disability Social background Affordable "Just" for all</p>	 <p>Safe Road safety Gender lens Vigilance and Surveillance Security First Response</p>	 <p>Accessible Connectivity Access to NMT & PT Obstructions free Reliable multiple options Priority access Legible</p>	 <p>Green Emission free Noise free Maintained street greens Renewable energy</p>	 <p>Playful Enjoyable Active Stimulating Stress free Anchored in local culture</p>
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Objectives for ITC-friendliness in mobility planning

 <p>Convenient</p> <ul style="list-style-type: none"> Amenities for care-giving Pleasant mobility spaces 	 <p>Resilient</p> <ul style="list-style-type: none"> Functioning during extreme events Recovering quickly Adaptability 	 <p>Behaviour change</p> <ul style="list-style-type: none"> Behaviors of decision makers, middle management and front-line staff 	<p>Overarching themes for ITC-friendly mobility: Non-negotiable</p>
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Overarching themes for ITC-friendly mobility

3.2 Framework for ITC-friendly mobility

Cities shall implement following seven principles in their existing and ongoing mobility related program to retrofit young children-friendly lens into planning.



1. Safe streets



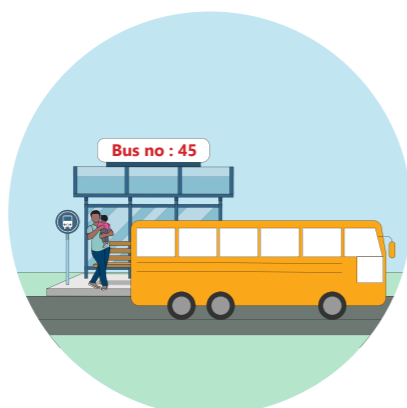
2. Accessibility to early childhood services



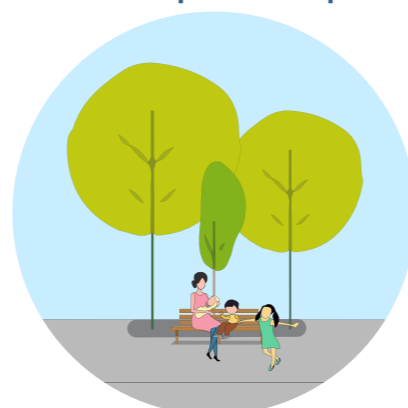
3. Accessible and affordable public transport



4. Reliable first and last mile connectivity



5. Convenient wayfinding



6. Opportunities to rest and play



7. Healthy street environment

1. Safe streets - A network of continuous, safe footpaths and cycle tracks will encourage caregivers to walk with their children while accessing their daily destinations. It offers an opportunity for physical activity, while enhancing interactions among each other and their surroundings. Ensuring mixed land use can bring people closer to services and amenities and enliven public realm with more eyes on street.

2. Accessibility to early childhood services - As ITC move around in the city to access various services, it is essential to ensure safety from traffic. Seamless movement in interface areas shall be ensured where they have to cross the street or junction to reach ECD service, hop onto IPT mode or change the transit modes. Waiting spaces for caregivers outside ECD services shall be safe, comfortable with sufficient seating and interactive spaces.

3. Accessible and affordable public transport - Availability of public transport near to the residential areas and around ECD services shall be planned. Affordable public transport becomes crucial to ensure it is being used by all sections of society and does not become a hurdle for some due to high cost of travel.

4. Reliable first and last mile connectivity - The connectivity from residential areas and ITC destinations to nearby transit stops shall be enhanced to allow seamless first and last access for caregivers with children.

5. Convenient wayfinding - All streets and intersections around transit stops and destinations frequented by infants, toddlers, and caregivers shall provide legible wayfinding and signages for caregivers to navigate while walking and cycling. In case of emergencies, evacuation and exit guides shall be easy to comprehend for caregivers in public realm.

6. Opportunities to rest and play - Streets shall provide comfort to ITC in walking and cycling to their destinations by ensuring that they have spaces to pause and rest and even engage in play. Streets can be made active throughout the day and night with interactive frontages and activity zones such as vending.

7. Healthy Street environment - Green buffer to protect from vehicular exhaust, carbon capture measures along streets, noise barriers, clean, green and shaded footpaths shall be mandated along ITC destinations and transit spaces. Low emission zones shall be identified and implemented.

3.3 Key Intervention Areas

City-level Public Transport Network

The city level mass transit systems shall provide connections to all children-oriented destinations to increase its use by caregivers with young children to travel anywhere in the city.

Associated key agencies:

City and regional transport services and infrastructure providers including Metro, BRTS, State Bus Transport Corporation.

Zonal-level Transit Stops and IPT Stands

The zonal level mobility needs to provide connections to young children-destinations in the neighboring wards or zones in the city through access to transit stops and IPT stands that are provided with ITC-friendly amenities and design elements.

Associated key agencies:

Intermediate Public transport, Autorickshaw / Paratransit operators, Traffic Police.

Neighborhood-level Mobility

Continuous and connected urban street corridors for walking and cycling with amenities to move and pause, that include shade, lighting, seating, health kiosks and activity zones for children.

Associated key agencies:

Roads department, Traffic department, Traffic police department, Urban Design cell, Town planning department.



3 key intervention areas for improving ITC-friendly mobility



Photo Credits:
WRI INDIA

4. Phases for Mobility planning

ITC-friendly mobility planning is a comprehensive process which City governments are supposed to adopt. Before diving deeper into actionable steps, this section explain three simple phases of this piece of work. **a) Understand, b) Plan and build c) Measure**

a) Understand: This phase is essentially aimed at understanding the existing mobility scenario and the baseline of the city. It involves spatial mapping of mobility and ECD (Early Childhood Development) services to comprehend their spatial distribution across the city. Additionally, it seeks to understand the challenges, barriers, and opportunities associated with the current mobility modes. Annexure 1 provides a checklist of required data for this phase. Ultimately, this phase helps to identify gaps in children’s mobility with the help of data and stakeholders.

b) Plan and Build: This phase is when cities will create a Mobility plan having ITC priority zones, develop solutions to be implemented and test on-ground, and scale up across different zones. ITC-friendly solutions shall be derived by understanding the needs of caregivers, referring to global practices, and doing on-ground observations near ITC destinations. Annexure 2 and Annexure 3 provide sample survey formats for assessing the physical space and surveying caregivers.

c) Measure: Lastly, once the mobility plan is implemented, this phase continues for cities to measure the progress and impact of the Plan. Key performance indicators (KPIs) can be formed for monitoring and evaluation of impact. For example, number of children-focused mobility interventions within a year, budget allocation, and revisions in policies and guidelines. A detailed list of KPIs is provided in the chapter- Monitoring and Evaluation of the Plan.

The following section gives detailed step-by-step guidance to create ITC-friendly Mobility Plan for the city.



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5. How to prepare ITC-friendly Mobility Plan?

This section is the core guidance with 5-step process for preparing ITC-friendly mobility plan. It is an evidence-based, stakeholder inclusive and action-oriented process for ensuring all profiles of infants, toddlers and caregivers are benefited by safe and convenient mobility experience.

Evidence-based

Stakeholder-inclusive

Action-oriented



STEP 1: Understand City Baseline



STEP 2: Map ITC destinations and mobility services



Mobility plan



STEP 3: Gap Assessment



STEP 4: Identify and Plan ITC Priority Zones



STEP 5: Agency-wise Action plan and solutions

STEP 1

5.1 Understand City baseline

Output – Where does the city stand right now? Existing situation data.

To create a city-specific ITC mobility plan, it is required to understand baseline situation of city’s young children population and mobility in terms of their presence, living conditions and available access. This step requires cities to collect relevant data from existing official sources that can give baseline overview.

5.1.1 What type of Baseline data is required?

Begin with city level statistics related to population, densities, basic services such as water, sanitation, types of transport modes in the city. Certain infants and toddlers related data is also helpful such as 0-6 years children population, living conditions, their access to health, nutrition and education. Following data points are generally available with Indian cities through Census and other mandatory official reports.

- 0–6 year-old children population, density, and distribution
- Locations of informal settlements, disaster-prone areas
- Housing conditions/ living conditions
- Income levels
- Average cost of mobility – expense of travel on public transport, shared auto
- Types of transport modes, modal split
- Access to basic services such as water, sanitation
- Access to health and nutrition

5.1.2 Where to find the data?

- **Population and living conditions related data-** Cities can refer to the latest Census report and projected population data, income levels, density, and its distribution. Household surveys conducted by government affiliated groups can be utilized to understand living and housing conditions in the city – such as temporary housings, non-notified slums.
- **Access to basic services data-** Extract data from official WASH reports (Water, Sanitation, and Hygiene), Livability index, ICDS reports, school NIC portals to gather information on basic services such as health, education, nutrition.
- **Public transport data-** Latest data can be obtained from monthly, quarterly, or yearly reports published by transit agencies such as BEST, PMPML, MSRTC. Metro DPR can be referred for projected ridership, modal share, gender study, employment centers.

The main objective of this step is establishing a baseline of where the city stands. Therefore, if official data is not available for any aspects, cities should conduct stakeholder consultations with CSO, NGO, citizen groups to gather baseline data from their knowledge resources and insights. Conduct a series of consultations with specific stakeholder groups, including caregivers, officials from various departments, local leaders, NGOs, and individual experts. Following tools for these consultations can be explored.

Focused group discussions

with caregivers and frontline staff from various wards

Joint consultation workshops

with various departments and agencies or ward officers or department heads

One-to-one discussions

with local organizations and experts working in the city around development projects

5.1.3 Aligned convergence with existing programs, policies

Apart from Baseline data, it is important to check existing programs, plans and policies that are concurrent with ITC-friendly development. These may be used for reference or as a foundation for initiating ITC Mobility approach in the city.

Various global, national, state or city level programs may be targeting similar vision of children-oriented or even sustainable mobility, non-motorised transport or enhancing public transport for cities. Converging ITC lens into these existing programs may boost the development more efficiently. Local campaigns by citizens and local leaders around safe mobility can also be leveraged to include ITC-friendly mobility planning. Understanding concurrent programs and efforts will help to establish Baseline of the city. Following are a few examples of existing programs and policies city can look at for concurrence:

- Global initiatives – Urban95, Cities4children, UNICEF Child-friendly Cities
- National-level initiatives - Smart Cities Mission, Nurturing Neighbourhoods Challenge, Streets for People Challenge, National Urban Transport Policy
- State-level programs, policies – Sustainable Urban Transport Policy, Active Mobility Bill (Karnataka)
- City level programs – Child-friendly city plan, Pedestrian policies, Street design guidelines, Tendersure, Swachhta Abhiyaan

Comprehensive Mobility Plan

If a city already has a Mobility Plan, it can be retrofitted with ITC lens that targets specific zones in the city to improve mobility experience and highlights specific zones in the city for ITC-friendly solutions.

Convergence with Nurturing Neighbourhoods Challenge (NNC)

The Challenge is hosted by Ministry of Housing and Urban Affairs and targets children and caregiver-centric development of cities in the domain of public spaces, streets, amenities, policies, and plans. 10 cities in India have implemented

various projects in neighbourhoods to improve access to streets, public spaces. Such initiative creates stronger baseline for the city and can be leveraged to develop ITC mobility plan as a statutory document.

Convergence with Streets for People (S4P)

This National level initiative is supporting Indian cities to develop streets that are people-oriented, considering all ages and abilities and their usage patterns. This baseline can be helpful to test out ITC-friendly mobility solutions in certain high footfall streets and create buy-in for developing ITC-friendly Mobility Plan for the city's long-term vision.

Case of Sustainable Urban Transport Framework by DULT, Karnataka

This state-level framework is for managing urban transport funds at state level. By leveraging such framework and aligning goals, cities can fulfill fund requirements for developing ITC mobility plans.

STEP 2

5.2 Map ITC Destinations and mobility services

Output - Spatial map of ITC destinations and mobility infrastructure

Once the Baseline of the city is understood, next step is to dive deeper into specific information on where and how infants, toddlers and caregivers travel in the city. This step includes two activities – first is collecting spatial locations of ITC destinations and mobility services and second is mapping all data on geo-spatial tool such as GIS for analysis.

5.2.1 Collecting Spatial locations

(ITC destinations+Mobility services)

Generally, ITC destinations include early childhood services such as vaccination centres, schools, anganwadis, day-care, health clinics, parks and public spaces. Beyond these, caregiver-related destinations such as markets, offices, religious places may also be part of their daily trips. Please refer to following list of typical ITC destinations for collecting spatial data. Additional locations may be considered based on local context and requirement.

Government-run services

- Primary health care and vaccination centre
- Government hospitals
- Anganwadis
- Public gardens / parks
- Pre-primary and primary schools
- Government offices and administrative buildings
- Palnagarh/creche

Privately-run services

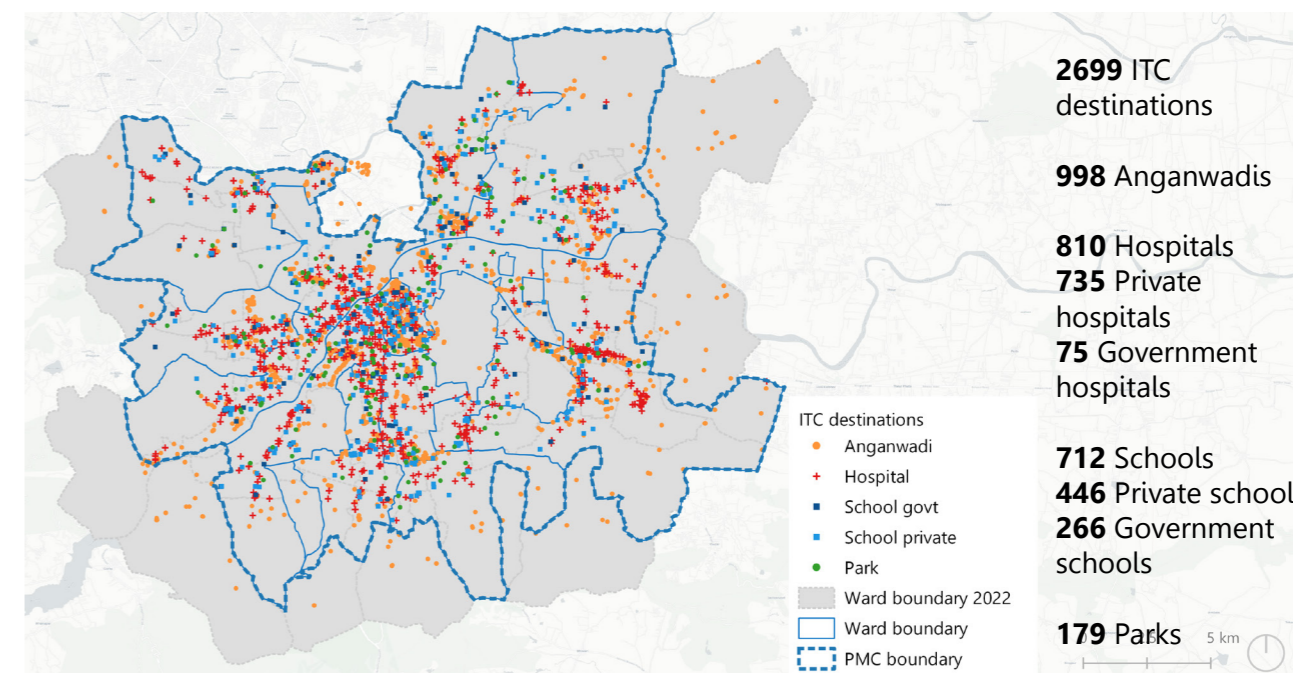
- Maternity hospitals and nursing homes
- Women and children's clinics
- Daycare centres and kindergartens
- Private pre-primary and primary schools

Social Anchors

- Community/cultural centres
- Religious places (temples, churches, prayer halls .)
- Women skill development centres
- Vegetable and grocery markets, public plazas, community chowks, eat streets

Land Use

- Residential, commercial, mixed use, educational, amenity zones
- Informal settlements, slums
- Open spaces, parks and playgrounds,
- Natural resources, reserved forest, water bodies (blue-green infra)



ITC destinations across Pune

Source : PMC, WRI India

The above ITC destinations mapping will help to understand WHERE infants, toddlers and caregivers travel and overlapping that information with city's mobility infrastructure is crucial to know HOW they travel. Therefore, spatial data of street network, public transport network and stops, IPT network and stops is important. This can be collected from secondary sources such as city's GIS portals as well as transport agency's monthly or annual reports.

Following data of mobility infrastructure and services shall be mapped to maximum extent. Additional data may also be mapped based on local context and requirements.

Active mobility infrastructure

- Road network and typology
- Pedestrian infrastructure network e.g.: % of roads having footpaths, % of footpaths with minimum 1.8m width,
- Bicycle lane network (dedicated and shared); e.g., % of network covered, encroachment of cycle tracks by vehicle parking (%)
- Bike share facilities (including docking locations) Junctions and intersections
- Pedestrian crossing facilities – zebra, table top, foot over bridge, skywalks
- Pedestrian and vehicular signals
- Signage, wayfinding

Transit stops and services

- Location of bus stops
- BRTS Route
- Locations of BRT Stops
- METRO Stations & Lines
- Railway Stations
- State Bus Depot
- Parking Facilities
- Level of usage of intelligent transport system (surveillance system, GPS, signal coordination, passenger information system, multi-modal ticketing system)

IPT Services

- Locations of IPT stops/ auto, taxi stands
- Presence of IPT vehicles per 1000 population
- Average speed of IPTs
- ITS with GPS facility

In addition to above spatial data, cities can collect descriptive datasets which showcases qualitative/usage aspects of mobility services such as level of services, safe access, gender-disaggregated usage.

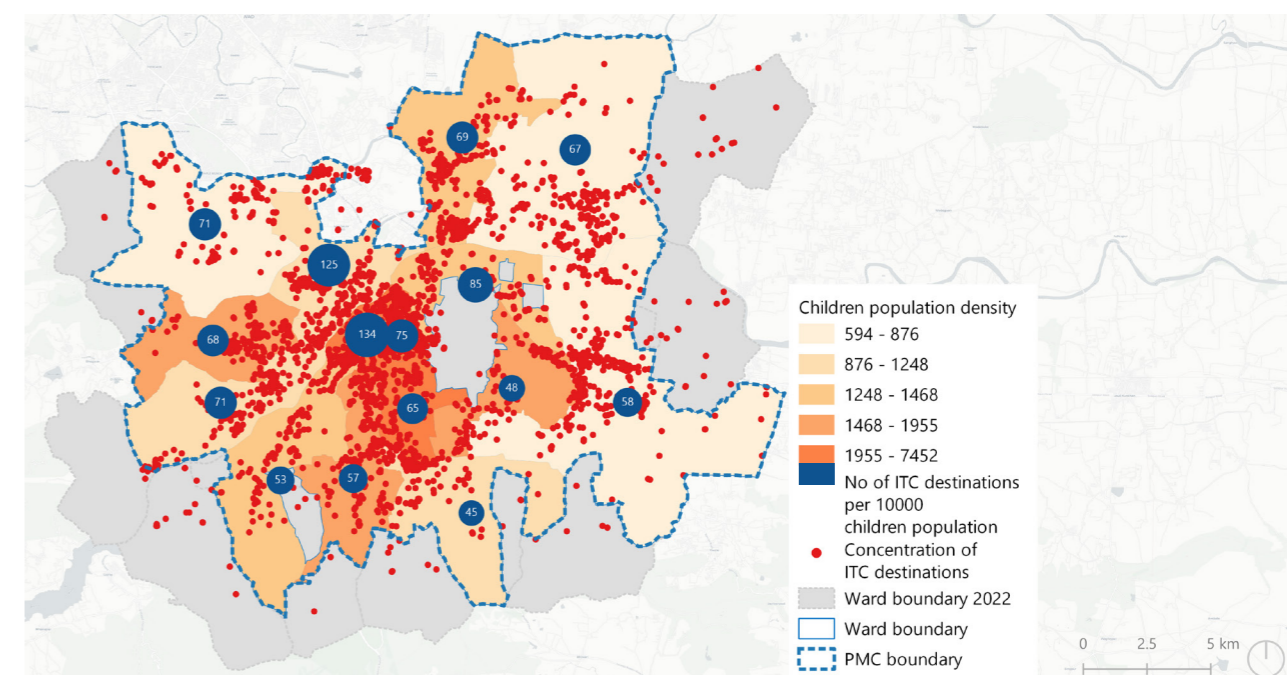
Existing Level of Service of public transport

- % of transit networks having dedicated RoW for transit movement e.g., BRT corridor

- Availability of public transport– buses per 1000 population
- Service coverage of public transport
- Average waiting time for public transport users
- Transit Access Area
- Ratio of total boarding by population
- Affordability of public transport, e.g.: affordability index = (# of trips * avg. cost per trip) /per capita income
- Average ticket cost, day/month pass
- Subsidy for women, young children
- % of fleet as per urban bus specification

Road safety/crash data:

- 3 years fatalities data
- Minor, and major injuries data: Victims' age, gender, type of crash, time of the crash, date, location (intersection, mid- block, flyovers, .) and reason
- Fatality rate per lakh population
- Fatality rate for pedestrians and NMT



Existing concentration of ITC destination per 10,000 children population in Pune

Source : PMC, WRI India

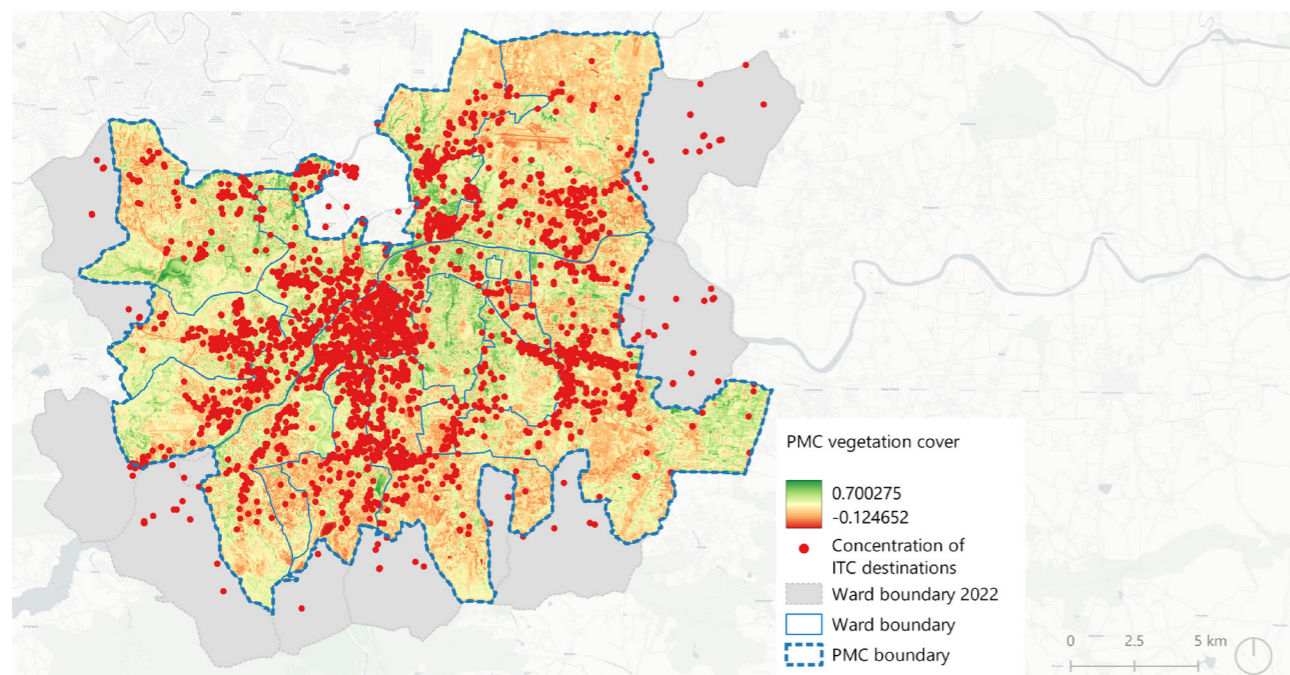
Traffic data

- Traffic volumes (daily, annual average)
- Average speeds of cars, average speed of two-wheelers, heavy vehicles and buses
- Speeds of Peak hours, off-peak hours
- Congestion patterns based on day- of-the-week and time-of-the-day, bottleneck locations
- Work zone locations

In addition to mobility data, certain environmental factors shall be checked which affect mobility of children and caregivers.

Ambient environment data

- Tree census, inventory
- Green cover, vegetation index
- Blue infrastructure such as river, lakes
- Wetlands, floodplains, canals
- Fields, parks, forests, open spaces
- Ambient air quality – using data from satellite and air quality monitors if available around ITC destinations (concentration of SO2, NOx, PM10, PM2.5 based on residential and industrial area as mentioned by Central Pollution Control Board)
- Exposure to hazardous air – source locations, risk zones
- Noise levels
- Surface temperatures, heat islands



Vegetation cover of Pune

Source : PMC, WRI India

5.2.2 Spatial mapping of data

Cities shall preferably use geospatial softwares such as ArcGIS, QGIS or Google Mymaps to locate all of the above data on a single platform for further analysis. In case of unavailability of GIS expertise, cities can create manual maps on AutoCAD or similar software with the help of engineers and planners.

Locations of each type of ITC destinations (anganwadis, hospitals, parks) should be overlapped along with locations of mobility services (bus stops, metro stations, PBS). Relevant attributes of each point location should be mentioned, for example, enrollment numbers of anganwadi, ridership of metro stations. These are helpful to understand footfall and usage of services.



How to find spatial data?

Cities can primarily opt for two methods. First one is to use secondary data sources such as city GIS portal, Development plan, Mobility plan, data excels. Second method is to crowdsource data through stakeholder consultations in the form of primary surveys/interviews with caregivers and group discussions with officials and citizen groups. Their on-ground knowledge can be leveraged to get spatial locations of ECD services, bus routes and usage patterns. Especially for smaller cities lacking advanced datasets, this method of stakeholder consultation can be a powerful tool. Both methods have been explained in detail below.

Secondary data sources

Information on locations of early childhood services and public spaces can be extracted from land use and zonal data from City development plan, Mobility Plans, Municipal department datasets. Anganwadi and school data is also available with State and National portals such as schools GIS portal, ICDS portals. Data related to PHC, parks and public spaces can be gathered from Municipal departments such as Garden, Health, Social welfare departments. Some cities may also have smart city GIS maps, Social and environmental reports, Liveability index and other central government data reports. Refer to Annexure 1 for reference list of data points and its sources.





Stakeholder consultations

Although cities are encouraged to collect comprehensive data, some cities may not have fully developed datasets readily available. Therefore, cities not having initial capacity to do it, can gather data from stakeholder consultations. Stakeholders such as government agencies and departments, non-governmental organizations, CSO, individual experts and academic groups can provide insights on spatial locations of various services and usage information. Various formats of consultations can be used to map relevant data from their knowledge and insights. A systematic consultative process such as intercept surveys, FGD can be used to gather data from users (citizen groups, caregivers). Group discussions and hands-on workshops can be organized with departments and agencies as well as NGO, CSO to map destinations across the city. Primary data collected via this shall be referenced to administration wards/zones to co-relate them together with secondary data. Simultaneously, on-ground observations and surveys with the help of surveyors and technical experts can help in verifying such consultative data.

This method is quite effective to not only map ITC destinations but also understand nuanced, qualitative aspects of their mobility experience. In addition, it helps to increase awareness among caregivers and officials about the need for evidence-based approach. This data shall be referenced to administration blocks or sectors or colonies.

Annexure 2 and 3 provides ready reference for interview questionnaires and observation forms.

STEP 3

5.3 Gap Assessment

Output - Where and what are the gaps in mobility?

After mapping of ITC destinations and mobility services, next step is Gap assessment by analysing the mapped data. Such analysis will identify gaps in existing mobility services and infrastructure. This will further help in formulating relevant mobility plan for the city. Gap assessment shall be done with two simultaneous tools. First is Spatial data analysis which is more technical in nature and gives factual evidences. Second tool is Community-based analysis which is a hands-on exercise of consulting with stakeholders to assess gaps. Both tools are explained in detail below.

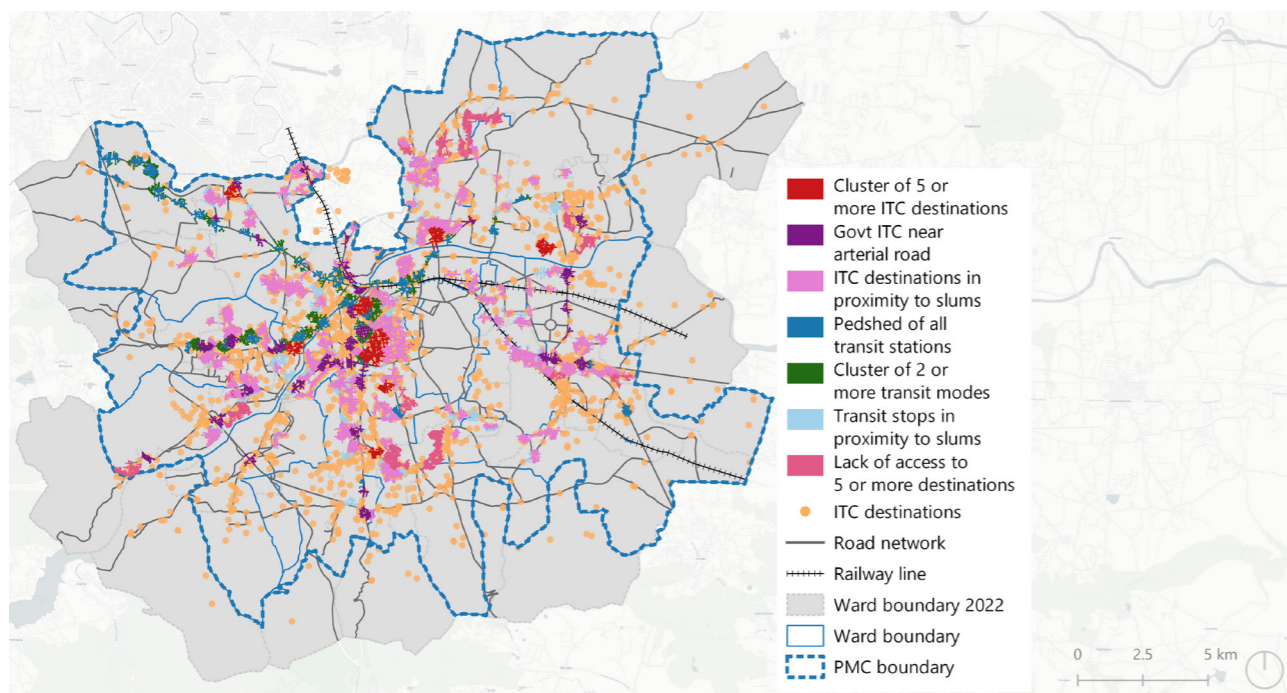
5.3.1 Spatial data analysis

Objective: Evidence-based approach

Following Step 2 of mapping ITC destinations and mobility services, cities can analyse the same to understand spatial gaps in distribution of services across formal and informal neighbourhoods. Additionally, gaps in proximity and access to services can also be identified along with critical inferences such as blackspots, clustering patterns, high-footfall services for children. This spatial analysis shall be carried out with following parameters, but can be modified to suit more relevant parameters for the city.

- i. Cluster of ITC destinations:** Cluster of 5 or more unique types of ITC facilities which fall within 300m of one another (these may be combination of any 3 facilities - anganwadi, school, clinic, hospital, parks)
- ii. ITC destinations located on arterial / main roads:** All ITC services, including public parks, gardens and playgrounds situated within a 50m buffer along the arterial/high-traffic corridors of selected ITC destinations
- iii. Multimodal transit areas:** (i) 300m pedeshed area of all bus terminals, metro stations and railway stations (ii) Cluster where 2 transit services - Metro station or bus stop or railway station located within 300m pedshed
- iv. Lack of public transit near ITC destinations:** Areas with high density of ITC services but no access to public transit services within 300m (No access to bus stops within 300 m).
- v. Services in proximity to slums:** ITC destinations and transit stops in proximity to slums within 50m and access streets of public transit stops.
- vi. Crash location and Traffic risk hotspots :** Location of blackspots in the city, recurring accident zones and high-risk junctions and streets.

This analysis is crucial to understand if the existing mobility services and infrastructure cater to the ITC destinations or if a city needs to enhance certain aspects of mobility services to provide better access.



Priority zone parameters of Pune

Source : PMC, WRI India

5.3.2 Community-based gap analysis

Objective: Inclusivity of process

This step becomes a follow-up process of consultations after Step 2 of data collection. It uses stakeholder knowledge to analyse mapped data and assess gaps in the mobility experience. Caregiver groups, service providers can be convened in hands-on workshops to analyse spatial data around travel patterns and understand where services lack and how certain statutory mandates or guidelines may not provide for enriching mobility experience. This type of consultative analysis is completely based on first-hand experience and knowledge and ensures inclusive process of Mobility planning. On-ground audits, FGD, intercept surveys and joint workshops are some of the tools for doing this analysis. A few examples are as follows.

Workshops with agencies working around ECD and mobility

- Workshops with Bus agency officials can be helpful to understand how suitable public transport is for caregivers with young children. Analyse current and estimated ridership, share of caregivers with young children, caregivers mode choices, gaps in services, proposed improvements.
- Municipal corporations, smart city agencies can be consulted to assess gaps based on their knowledge and insights of the city. They can help suggest where street infrastructure needs improvements, areas with lack of basic infrastructure, safety issues, .

Primary surveys with caregivers

- Door-to-door surveys with caregivers
- Intercept surveys/interviews around ITC destinations to understand gaps in current trips
- Online forums and workshops for caregivers to note gaps in mobility services they use – footpath conditions, bus timings, last mile access
- Focused group discussions with parents group to assess gaps in their typical travel scenarios
- Focused group discussions with informal population to assess gaps in equitable access to them

Interactions with service providers

- Discussions with anganwadi and healthcare staff, ASHA workers to assess gaps in access for caregivers who visit their services
- Workshops with bus drivers and conductors to assess shortcomings in the transit systems that hamper caregiver experience

5.3.3 Findings and Inferences

Outputs of the spatial data analysis and community-based analysis shall be overlapped together to finally draw inferences such as

- 1) Where are infants, toddlers and caregivers visit most frequently (high footfall zones) and what are the typical challenges they face while moving in that area?
- 2) Which areas/neighbourhoods have the highest concentration or clusters of ITC destinations?
- 3) Are there sufficient mobility services in the area to meet the demand?
- 4) Are caregivers with young children not using mobility service due to certain barriers? are there any barriers in mobility?
- 5) Are there public transit stops available near clusters of ITC destinations?
- 6) Is there any issues in accessing public transit such as last mile disconnect?
- 7) Does vulnerable populations in the city have access to safe streets, public transit for their daily commute?
- 8) Which improvements can encourage caregivers to opt for public transport and NMT modes?
- 9) Where to improve last mile connectivity?
- 10) Which caregiver amenities are required for enhancing mobility experience-feeding booths, restrooms, diaper changing platforms, storage?

While drawing above inferences, certain zones of the city will be highlighted as urgent, priority areas to improve mobility conditions. Those shall become part of the ITC-friendly Mobility Plan of the city. If priority areas, post analysis extends 10% of city area, then city agencies can plan phase-wise development. Based on the gaps found, relevant improvements shall be planned in these priority zones. The next section details how Priority zones shall be formed in the Mobility Plan.

STEP 4

5.4 Identify and Plan ITC Priority Zones

Output - A set of ITC Priority zones

Following the Gap assessment, cities shall have a clear understanding of which zones/neighbourhoods/parts of the city shall be intervened on priority based on urgency, lack of infrastructure or risks. These zones will be referred as ITC priority zones and a list of these zones with their identified boundary shall be added in the ITC mobility plan. City should take up these zones in phase-wise manner and plan interventions. Various tools and recommendations given in the later sections can help in planning suitable interventions. This section explains how to delineate ITC priority zones based on gap assessment followed by implementation of trials, and finally developing scalable programs.



5.4.1 ITC Priority Zone Delineation

- Zone delineation is informed by the Gap assessment carried out in previous step by spatial analysis and community consultations. Identified zones should be referenced to a ward or sector boundaries, if possible, for ease of working.
- For example, if the gap assessment highlights that streets around ITC destinations in core city are not suitable, then city shall delineate boundaries of walkable zones around them and treat that as ITC priority zone. If the gap assessment found out that many slums do not have bus stops nearby, then city shall delineate such areas as ITC priority zone and plan bus routes better.
- The method of zone delineation is very similar to Local area planning process. This zone-oriented approach can ensure concentrated and comprehensive mobility improvements, instead of few solutions implemented in silos.

5.4.2 Planning for ITC priority zones

- For each priority zone, cities shall make action plan for immediate physical changes and long-term actions in mobility improvements for ITC.
- Ward level committee meetings can be held while formulating programs for each zone. Stakeholder discussions, joint site visits are extremely helpful tools for planning practical and useful solutions. Collect data regarding footfall, peak and off-peak hours for



ITC, conditions of footpath and buses. For example, street audit by caregivers and children can highlight inaccessible parts, unsafe, and dark spots and lack of safe crossings.

- With the help of urban designers and planners, cities shall create conceptual design proposals for priority zones which include inclusive solutions – ranging from street improvements to junction safety to public transport services to last mile access. Shared transit systems such as shared taxi, auto, mini buses can help in the last mile access to ITC destinations.

For any Priority zone implementation, following checklist shall be used to ensure immediate surroundings of children’s services and destinations are safer to move around. Junctions located within 50m of any ITC destinations shall incorporate below-mentioned strategies as a standard practice. Public transit stops within each Priority zone should follow these strategies to encourage caregivers to use public transport.

Near young children friendly destinations, Junctions and Public transit stop

- | | | |
|-------------------------|-----------------------------|--------------------------------------|
| Traffic calming measure | Highlighted zebra crossing | Signages for wayfinding, speed limit |
| Min 2m wide footpath | Green buffer along footpath | Shaded Clustered seating space |
| Mid-block crossing | Low level seating | Sensory path |
| Play pocket | Interactive elements | Cycle track/lane |

Near Junctions

- | | | |
|-------------------------------------------------------|-----------------------------|--------------------------|
| Safe crossing | Channelizer at intersection | Green buffer at chamfers |
| Raised intersection | Curb ramp with bollards | Refuge space on median |
| Rumble strip at 13m distance before junction/crossing | Lighting | Pedestrian signal |

Near Public transit stop

- | | | |
|--------------------------------------------|------------------------------------------------------------|-----------------------|
| Shaded bus stop | Dedicated auto stand | Dedicated cycle stand |
| Seamless transfer from one mode to another | Low level seating | Interactive elements |
| Play element | Convenience center such as feeding booth, family restrooms | |



5.4.3 Test, learn and scale

- Before implementing proposed solutions, it is helpful to test them on-ground for a specific period to see how well they work or if they require some modifications based on context. The learnings from testing can help in efficient and practical scaling up strategies.
- In case of streets, trials shall include demarcating footpaths, junction geometry, dedicated parking, drop-off zones, streetside plazas or play pockets. Driving, cycling and walking behaviours shall be monitored during trial period to see if mobility experience has been improved for caregivers with young children.
- Buy-in from local leaders and community shall be sought for implementing proposed plans in the zone.

5.4.4 Services and operation improvements

- In addition to infrastructure enhancements, cities shall plan improvements in services and operations of public transport, IPT such as autos and mini vans. By evaluating efficiency of current bus fleet and schedules, new routes and timings can be added in priority zones. This will help in improving ridership of caregivers as they will find public transport more convenient and reliable. Locations of bus stops and IPT stands shall be proposed closer to ITC destinations for convenience of caregivers.
- Cities can test new routes on temporary basis for few weeks to check ridership improvements or even deploy minibuses in certain congested areas. Cities can also test increasing frequency on their regular routes to encourage caregivers to use buses for child-care trips.

5.4.5 Scaling up

- Upon assessing trial impact, cities shall develop city-level scale- up plan to ensure the improvements are carried out in more priority zones. Scaling up actions should include multi-domain solutions as well as operation & maintenance plan.
- Scale up should include following basic solutions for safety and accessibility around Priority zones - Cluster development of ITC destinations, connected walkable routes between them, planning bus stops network around them, nearby crossings and junctions safety, wayfinding systems, scheduling buses during school

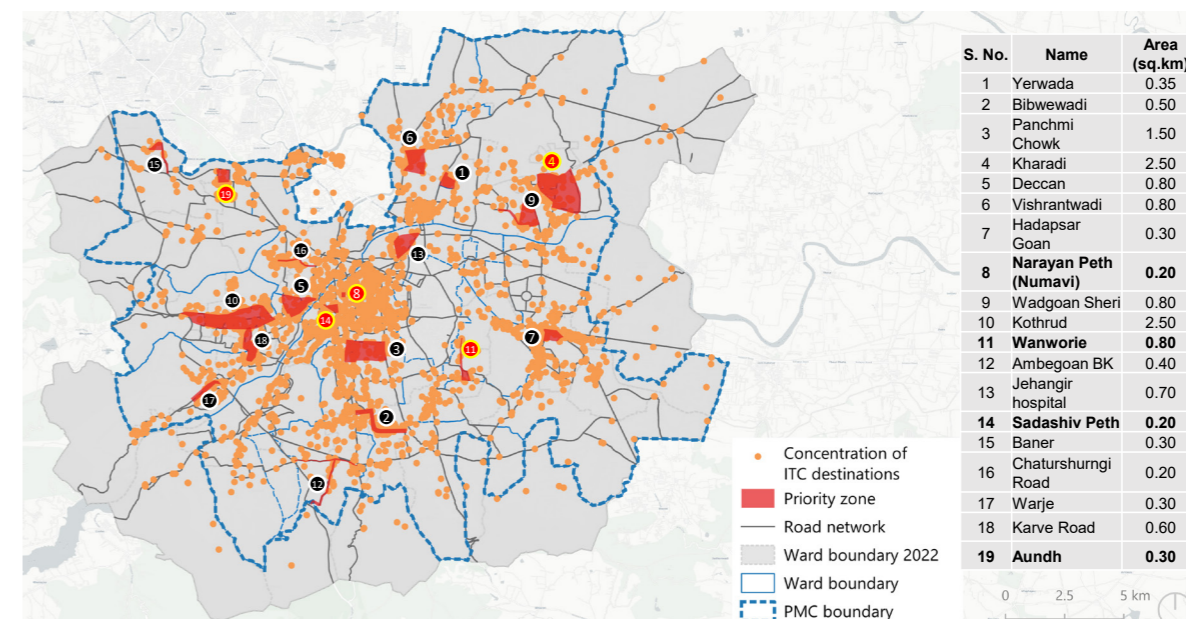
hours, traffic wardens presence near major junctions close to ITC destinations, female police presence during night time around parks and transit spaces, traffic signal timings suitable for ITC to cross safely.

- Appoint nodal agency for maintaining new changes and enforcing speeds as proposed in these zones. For example, Traffic police department shall enforce speed limits as well as monitor vehicle safety.

Based on above points, cities shall be able to identify ITC priority zones with suitable action points for interventions.

Example of Pune's ITC Priority Zone map

Based on secondary data analysis and community consultations, Pune identified 19 Priority zones in the city. Major gaps were found in ITC destinations clusters, around slums and near public transport stops, especially upcoming Metro stations. Gaps in accessing Public transport, speeding vehicles around children's destinations, unsafe walking experiences, and lack of infrastructure around slums were some of the major gaps inferred. Based on the severity of these parameters, 19 zones were identified for doing interventions. With comprehensive improvements, a large population of ITC will be benefited in their daily commute to ITC destinations.



ITC Priority zones of Pune

Source : PMC, WRI India

At the **neighbourhood level, street corridors** giving access to infants and toddlers-oriented destinations could be identified to incorporate:

- Complete network of continuous, accessible, well-lit and shaded pedestrian and cycling infrastructure
- Road safety with safe crossings and slower streets with traffic calming measures
- Shared streets within neighbourhoods with pedestrian priority
- Shaded pause and rest spaces with green cover.
- Network of green and blue infrastructure along with pedestrian only streets near ECD facilities.

At the **zonal level, public transport and IPT stops** can incorporate:

- Well-lit, shaded and universally accessible stops and terminals
- First and last mile connectivity to ITC destinations
- Priority queuing for caregivers with infants and toddlers
- Priority seating with larger seats for caregivers with infants in arms and toddlers
- Play and learn components and sufficient seating for caregivers

At the **city level, public transport network** can incorporate:

- Network-level planning considering ITC travel patterns and peak hours
- Increasing fleet and providing stops to be accessible within 300m from ITC destinations
- Multimodal seamless connectivity
- Frequent and reliable public transit services via data-informed dynamic scheduling and real-time information
- Low polluting and well-maintained public transit vehicles
- Safety and security through vigilance and quick response

STEP 5

5.5 Action Plan with ITC-friendly solutions

Output - Prioritized actions by various agencies in ITC priority zones

This section provides Agency-wise detailed action plan for mobility improvement via Design, Planning and Operations. The recommendations are classified by three types of agencies who typically play essential role in city's mobility development - Municipal Corporations, Transit agencies (bus, metro) and Enforcement agencies (traffic and RTO). The agencies shall look in to various ongoing and upcoming programs at the neighbourhood, zonal and city level to find if any concurrence exists and align their resources to implement these recommendations.

Apart from mobility-specific agencies and departments in the city, following crosscutting departments shall be part of this action plan to ensure coordinated efforts towards mobility planning.

- Family welfare department
- Education department
- Health department
- Early childhood development/ICDS department
- Women and child department
- Advocacy groups

Following table shows Agency-wise action plan for implementing 17 solutions crucial for young children and caregivers' mobility. Each of them are linked to ITCM objectives and specified whether they are short term, medium term or long term activity. Based on city's capacity and resources, these may be modified to suit the context.



Photo Credits:
WRI INDIA

S.no	Solutions	Action points			Time frame	Objective achieved
		Municipal corporations	Transit agency	Enforcement agency (Traffic and RTO)		
1	Increase presence of women in mobility	<ol style="list-style-type: none"> 1. Provide gender-sensitive infrastructure (clean washrooms near transit stops) to encourage women to use public transit and streets more often 2. Well-lit, safe access streets leading to ITC destinations and transit stops 3. Include female staff as frontline providers to create better perception of safety 	<ol style="list-style-type: none"> 1. Increase presence of women as frontline, middle management, and technical staff in transit system 2. Provide subsidies in fares for women to ease their caregiving trips 3. Priority queuing and seating for women with children 	<ol style="list-style-type: none"> 1. Presence of police officer at strategic locations including transit stops during off-peak and night hours 	Medium term	Inclusive Safe Behaviour change
2	Ensure all ages and abilities-friendly designs	<ol style="list-style-type: none"> 1. Provide continuous, smooth obstruction free, well lit footpath access 2. Mandate universal accessibility design for streets -curb ramps, tactile, sufficient widths 3. Stroller accessibility around bus stops, at entrances of ITC destinations with gentle ramps 	<ol style="list-style-type: none"> 1. Universal accessibility ensured in design of stops and stations 2. Introduce wider seats (min. 800 mm) for caregivers with babies in hand at metros and all buses 	<ol style="list-style-type: none"> 1. Train staff to understand needs of differently abled users. 2. Audio signals for pedestrian crossings 3. Build capacity of staff to improve behaviour of prioritizing safe movement of wheelchair users 	Medium term	Inclusive Accessible
3	Introduce ITC-friendly amenities	<ol style="list-style-type: none"> 1. Ensure family restrooms with diaper changing platforms, feeding booths, shared pram systems, shaded seating are provided in proximity to transit stops 	<ol style="list-style-type: none"> 1. Add multi-utility shelter spaces at transit stations with family restrooms which includes small playpens, library, food warming facility, water and food vending machines, nursing stations, diaper-changing areas, restrooms, nap or rest areas for parents/caregivers, first-aid facility 2. Introduce legible signages and route info boards for easy wayfinding of caregivers 3. Include creative information via digital boards and materials to sensitize the public about providing support to caregivers with infants and toddlers in need 4. Priority seating for caregivers with young children, including pregnant women within transit vehicles, at transit stops and stations. 		Short term	Inclusive Convenient
4	Ensure personal safety of infants, toddlers and caregivers	<ol style="list-style-type: none"> 1. Measures to protect from unintended injuries around streets and transit stops e.g. covered drains, no exposed utilities 2. Active frontages along the ITC destinations 3. Well-lit and shaded footpaths 4. No sharp elements or objects along streets 	<ol style="list-style-type: none"> 1. Safety elements such as handrails, level boarding, pedestrian sensors in bus and metro stations 2. Protection from traffic while boarding/alighting at bus stop area 3. Regular safety audits, perception ratings of bus and metro stations by users 4. Restraining/locking features in buses and metros for strollers, cycles 	<ol style="list-style-type: none"> 1. Support in emergency situations on-ground; e.g. road crashes, vehicle breakdown, harassment, violence 2. Priority to caregivers crossing the streets and junctions 3. Enforcement of helmet and seatbelt regulations 4. Regulating driver license 	Short term	Safe Inclusive

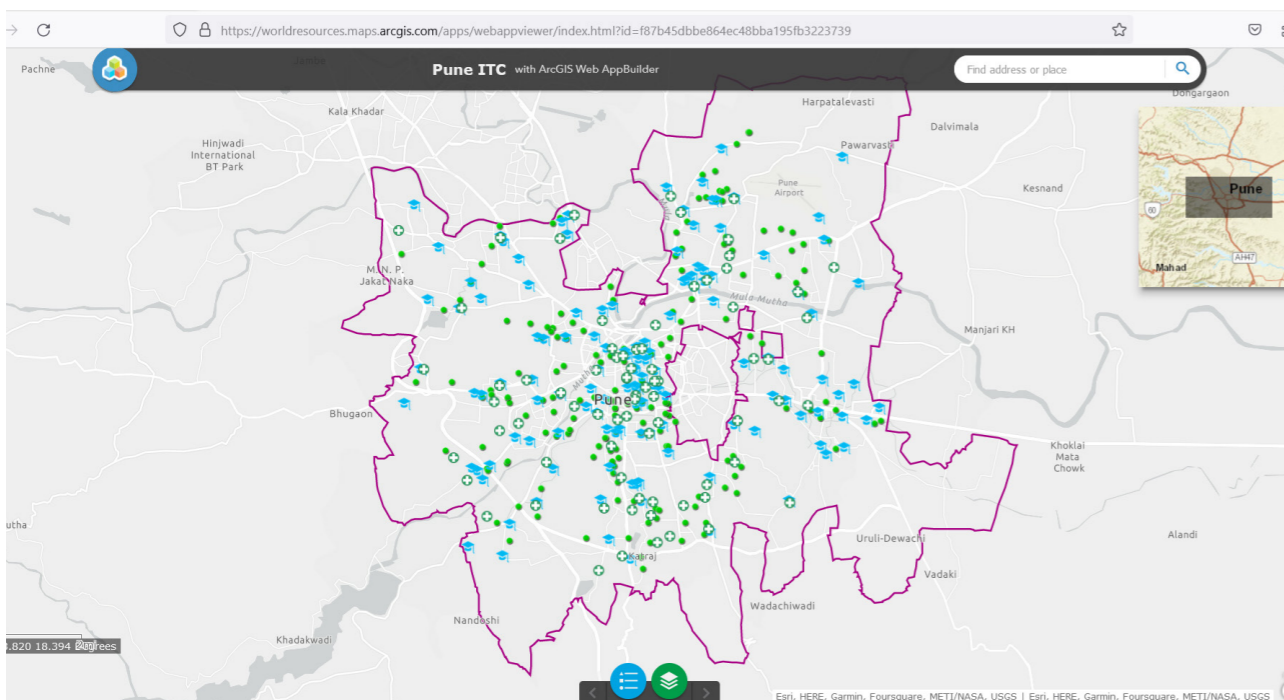
S.no	Solutions	Action points			Time frame	Objective achieved
		Municipal corporations	Transit agency	Enforcement agency (Traffic and RTO)		
5	Quick response systems for caregivers in case of emergency	<ol style="list-style-type: none"> 1. Installation of panic buttons at major streets and junctions 2. Emergency helpline or help booths 3. Dedicated quick response team 	<ol style="list-style-type: none"> 1. Installation of panic buttons at transit stops and stations 2. Emergency STOP button in transit vehicles 3. Dedicated quick response team 	<ol style="list-style-type: none"> 1. On-ground coordination with quick response system 	Long term	Safe Resilient
6	Improve road safety for infants, toddlers and caregivers	<ol style="list-style-type: none"> 1. Improve road geometry, visibility with refuge spaces around ITC destinations and transit stops 2. Provide mid-block crossing for continuous infrastructure of safe walking, cycling 3. Specify appropriate speed limits in high footfall areas (upto 30km/hr) 4. Introduce traffic calming measures at critical locations - tabletop near entrances, bulb-out at junctions, kerb extensions warning rumble strips, visual patterns 5. Introduce Pavement Management Systems (PMS) to prioritise maintenance, rehabilitation, and repair 	<ol style="list-style-type: none"> 1. Regularise driver training programs to improve driving behaviours and speed control 2. Install speed limit devices in vehicles to give warning alarms to drivers in case of high speeds 3. Improve driver's visibility with proper side and back mirrors to avoid road crashes 4. Ensure vehicle safety through regular checks and tests with technology based system (e.g. telematic system) 	<ol style="list-style-type: none"> 1. Penalising rash drivers and drunk driving 2. Enforcing speed limits around ITC destinations 3. Deploying traffic warden around school zones during pick-up drop-off times to manage traffic movement 	Short term	Safe Accessible Inclusive
7	Introduce technology-based system for monitoring traffic / pedestrian / public transport movement	<ol style="list-style-type: none"> 1. Ensure appropriate pedestrian signal timings as per children's walking speed of 20m/min around high children footfall areas 2. Provide all-red signal as clearance time for pedestrian in high footfall zones 3. CCTV surveillance outside transit stations and ITC destination clusters such as schools to monitor any cases of harassment or crashes 	<ol style="list-style-type: none"> 1. Install surveillance systems in transit - buses, metro 2. Introduce Advance Public Transportation System (APTS) for better communication with users, vehicle maintenance, and driver performance 3. Regular monitoring of timely services, delays 	<ol style="list-style-type: none"> 1. Introduce intelligent signal system for efficient and synchronised signal phasing operations 2. Management of traffic based on surveillance data 3. Personnel deployment at critical locations as per surveillance data 4. Early detection surveillance system 	Long term	Safe Resilient
8.	Enhance immediate surroundings of ITC destinations	<ol style="list-style-type: none"> 1. Street improvements in 300 metres zone of ITC destinations - wide footpath, cycle tracks, lighting 2. Clear wayfinding and signage on streets leading to ITC destinations 3. Mandate footpaths with unobstructed walking width of minimum 1.8m in residential areas and 2.5m in commercial areas 4. Planning pedestrian corridors across neighbourhoods as shortcuts leading to ITC destinations 5. Creating pause points for caregivers along the access streets of ITC destinations 	<ol style="list-style-type: none"> 1. Locate bus stops within 300m of major ITC destinations to ensure easy access 2. Transit stops should be integrated with footpaths without blocking walking area. Pedestrians and wheelchair users should not have to step into the street to board a vehicle, nor should they have to use steps to access a raised platform. 3. Provide legible wayfinding at bus stops giving directions to nearby ITC destinations 4. Ensure multiple options for Last mile transit to ITC destinations 5. Transit subsidies for children and caregivers to adopt public transport 6. Increase frequency and timing of transit during ITC peak hours e.g. school hours 		Short term	Accessible Inclusive Convenient

S.no	Solutions	Action points			Time frame	Objective achieved
		Municipal corporations	Transit agency	Enforcement agency (Traffic and RTO)		
9	Improve first and last mile connectivity	<ol style="list-style-type: none"> 1. Ensure continuous walkways from ITC destinations to and from transit stops 2. Create safe, vibrant, and at-grade crossings at critical intersections and provide them with traffic calming and pelican signals. 3. Provide dedicated drop-off zones for autos, taxis, school vans or mini buses 	<ol style="list-style-type: none"> 1. Introduce feeder systems like e-rickshaw, and e-buses within the catchment area e.g. special station buses 2. Provide shared pram, bicycle and e-bike systems outside metro and bus stations 3. Provide shared transit information at the stations 	<ol style="list-style-type: none"> 1. Monitor instance of vandalism in shared transit systems outside stations, in high footfall areas 	Medium term	Accessible Inclusive
10	Provide supportive infrastructure for health and nutrition	<ol style="list-style-type: none"> 1. Provide health, maternal and nutrition kiosks near certain ITC-destinations such as parks, primary health centers 	<ol style="list-style-type: none"> 1. Provide health, maternal and nutrition kiosks at major bus stops, metro stations, multi-modal hubs 2. Availability of nutrition kit, first aid and fire extinguisher in all transit vehicles 		Medium term	Inclusive Convenient
11	Improve micro-environment and thermal comfort around ITC destinations and transit	<ol style="list-style-type: none"> 1. Provide plantations, water fountains ran on clean energy, community gardens and green pockets at regular intervals of streets 2. Provide shaded footpath and frequent resting areas for caregivers along streets of ITC destinations 3. Plant local species, increase flora and fauna around streets 	<ol style="list-style-type: none"> 1. Microgardening, greening solutions concentrated around transit stops 2. Shaded bus shelters 3. Measures to lower temperature around stations 4. Eliminate heat reflective materials and instead add all-weather materials 		Medium term	Green Resilient
12	Ensure noise-free environment	<ol style="list-style-type: none"> 1. Introduce noise barriers on roads with high traffic volume, construction sites within the vicinity of ITC-destinations, residential areas 	<ol style="list-style-type: none"> 1. Regular noise level checks of transit vehicles and noise barriers or sound absorbing materials at stations 	<ol style="list-style-type: none"> 1. Penalising vehicles, including two-wheelers for noise pollution through horns and tailpipes 	Medium term	Green Safe
13	Reduce carbon footprint from mobility	<ol style="list-style-type: none"> 1. Use of locally sourced, sustainable materials for construction of roads and footpaths 2. Use carbon capture materials in design 	<ol style="list-style-type: none"> 1. Add vehicle fleet run on clean energy (Electric, CNG, Hydrogen, .) 2. Use of sustainable materials for constructing transit stops, depots - solar rooftops . 	<ol style="list-style-type: none"> 1. Regular monitoring of vehicle emissions by RTO 2. Penalty mechanisms for non obedience 	Long term	Green Resilient
14	Clean and well-maintained transit infrastructure	<ol style="list-style-type: none"> 1. Maintain cleanliness and hygiene in the premises of transit stops with sufficient cleaning staff 2. Waste management, disposal points, clearing garbage dumps along streets and transit stops 3. Mandate businesses and building owners to install and maintain proper gutters, downpipes, and drainage systems that prevent water from flooding walkways. 4. Quick helpline for residents to flag unhygienic surroundings, especially around children's services 	<ol style="list-style-type: none"> 1. Regular cleaning and maintenance of vehicles and transit stops 2. Maintain hygiene in supporting facilities (toilets, water fountain, benches) by appointing a transit maintenance officer 2. Introduce grievance system 		Short term	Green Resilient
15	Incorporate play and learn opportunities for enjoyable journeys	<ol style="list-style-type: none"> 1. Provide play and learn components such as abacus railings, sidewalk games, slides along footpaths leading to transit stops and ITC destinations 2. Provide play zone adjacent to transit stops to make waiting time engaging 3. Add local arts, culture and history-based elements along streets 	<ol style="list-style-type: none"> 1. Introduce interactive play elements at transit station to enable visual, linguistic, rhythmic and auditory learnings 2. Include touch-base, sound-based elements in design of bus stops and stations 3. Provide playful trails, graphical signage and wayfinding around transit stations which are legible to children 		Short term	Playful Behaviour change

S.no	Solutions	Action points			Time frame	Objective achieved
		Municipal corporations	Transit agency	Enforcement agency (Traffic and RTO)		
16	Generate social interactions among infants, toddlers and caregivers in transit	1. Create clustered seating spaces that allow group interactions of caregivers, open gym around transit stops, ITC destinations 2. Incorporate interactive installations, playboards for group play of children	1. Include interactive elements within transit vehicles to enable interactions and make journey more engaging - such as playful handrails, posters		Short term	Playful Behaviour change
17	Ensure seamless operations during extreme events	1. Develop an action plan with refuge locations marked and wayfinding for evacuation and gathering 2. Disseminate in public Dos and Don'ts via different communication channels (ITS, radio, social media, and newspapers)	1. Develop an action plan to operate public transport during extreme events, either for evacuation or carrying people (prioritizing ITCs) to safe locations 2. Showcase evacuation routes marked appropriately within the transit vehicles	1. Implement the action plan on-ground for evacuation and gathering at secured locations during extreme events	Long term	Resilient Safe



Project meeting with Pune city officials and department representatives



ITC friendly mobility dashboard for Pune

6. Implementation of Plan

Adoption and implementation of the Plan requires concrete steps to be taken by nodal city agency. It needs certain institutionalization mechanisms as well as advocacy and engagement among public to truly enable long-term, positive behavioural changes that the Plan envisions. Cities shall implement relevant actions from the following list to generate momentum, adopt evidence-based approach, build their capacities and form systemic processes for long-term.

6.1 Institutionalization

- Create a Nodal cell or Core team that will lead preparation and implementation of Mobility Plan. Ensure representation from all relevant departments and agencies for smooth functioning - Planning, Roads, Garden, ICDS, Bus, traffic police and Metro agency. This multidisciplinary cell shall coordinate and bridge the gap in planning mobility services and children facilities to ensure they are co-located for improved use.
- Nodal cell shall coordinate with other departments and agencies for respective tasks as required. A special officer/ITC officer may also be appointed who heads coordination works across agencies and departments.
- Nodal cell, headed by top officers, should monitor and evaluate progress of Mobility Plan and review if any modifications required.
- Provide dedicated resources and funds required for preparing and implementing ITC Mobility plan such as, urban planning experts, ECD experts, designers, surveyors, data management systems, GIS softwares.
- Ensure dedicated funding required for testing pilots and full implementation of projects in ITC priority zones.
- Appoint women as frontline staff at ITC destinations and in mobility services such as conductors, police.

6.2 Evidence-based approach

- Gender-disaggregated data, children's counts, modal share and frequency shall be collected from existing documents such as Master Plan, Mobility Plan or any government missions such as Ease of living index, Smart City, Command and Control Centres. Cities shall mandate children-specific data collection during any statutory process such as Master planning surveys, household surveys, livability polls.
- Primary surveys, Focused group discussions with community shall be conducted for on-ground evidence of issues and required solutions.
- Site surveys, observations, audit checklists shall be conducted in various parts of the city to assess existing scenarios and formulate priority zone accordingly.

- Ticketing information, ridership data of public transport shall be used regularly to device changes in routes and schedules suitable to caregivers with young children.
- Data dashboards shall be developed with ITC destinations and mobility data to monitor progress and make evidence-based decisions of new projects. Refer to table of data points provided in following chapter for more details.

6.3 Engagement for behaviour change

- Public outreach programs and campaigns to build momentum among citizens towards ITC-friendly planning – slogan and logo competitions, plantation drives, walk with toddler Sundays.
- Mainstream communications in TV, newspaper media to promote walking, using public transport with children.
- Open competitions for design professionals for creating innovative designs for ITC priority zones, e.g. School Travel Improvement Plan by Pune, interactive signage designs.
- Testing pilots and full implementation of projects in ITC priority zones to generate participation and support behavioural change from citizens
- Branding and advertisement around speed control, children-priority behaviours.
- Brand ambassadors for public campaigns of road safety, child safety to reach maximum audience.
- Weekly, monthly initiatives such as Car-free Sundays, Bus ride with toddlers to generate public demand.
- Behaviour-targeted joint activities with officials and citizens such as wheelchair and stroller audits to generate public demand.
- Public communication about the need for ITC-friendly mobility by top officials and political leaders through media shows, public speeches, TV interviews.



Traffic awareness session for young children



Photo Credits: IMA INDIA

- Transect walks in the neighbourhood to understand the problems faced by children while walking, travelling by public transport.
- Advocacy: Create network of local champions who can lead ITC-friendly mobility initiatives through regular convenings, public dialogues.
- Advocacy: Forming advisory groups, local citizen groups for advocating and sustaining the approach.

6.4 Capacity building

- Conduct routine sensitization workshops for frontline staff and service provider staff to generate awareness about needs of young children and caregivers.
- Capacity building workshops to enhance technical skills of the middle management staff working around mobility and ECD services.
- Develop and mandate technical training modules about ITC-friendly mobility, for municipal staff especially for roads dept, transit agencies, traffic police.
- 'Train the trainers' programs for department heads, commissioners and CEO.
- Partner with expert organizations who can support in delivering regular capacity building training to staff.
- Develop and disseminate knowledge products for regular internal use on how to interpret spatial analysis data.
- Site visits, study tours for middle management and technical staff to showcase best practices of inclusive mobility.
- Enroll government agency's top officials and mayors in Leadership courses to replicate best practices in their cities.
- Capacity building of citizen groups to train them in supporting children during emergencies and extreme events.
- Knowledge websites and mobile apps for staff to regularly use of guidance information in their daily tasks.



Capacity building workshop for municipal staff, frontline staff and service provider

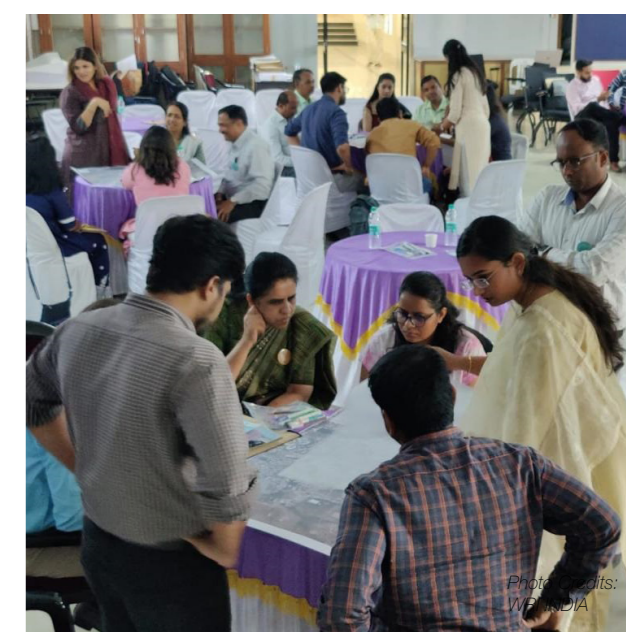


Photo Credits: IMA INDIA

6.5 Plan and policy level changes

- Notifications and circular to relevant agencies and departments to incorporate ITC lens in their domain of work.
- Prioritization of sustainable mobility policies, NMT plans and proposals.
- Adopt new plans and policies supporting children-friendly mobility development - related to inclusive streets, cycling plans, signage systems, school zone guidelines.
- Update existing policies and guidelines to incorporate best practices related to ITC-friendly development. For example, Street design guidelines, pedestrian or NMT policy.
- As part of the master plan preparation, update and add ECD services data to the GIS master plan.
- Mandating ITC-focused audit checklists of streets and public transit spaces during approval of new projects of streets, bus stops and metro stations.
- Updates SOR and similar standards to include ITC-friendly elements so that designers and contractors can implement them more effectively.
- Adopt supportive legislations and guidance issued by National and State governments toward speed calming, vehicle safety, women-friendly amenities, and road safety.

7. Monitoring and evaluation of Plan

To evaluate the progress and impact of ITC-friendly Mobility Plan, Key performance Indicators (KPI) are formulated below as a ready reference for cities. These indicators shall be collected and tracked every quarter to measure progress of implementation of Mobility Plan. The key aspects will be measured as mentioned below, covering physical changes to user perceptions to long-term legislative actions.

On-ground transformation

- street improvement
- upgrade transit stations
- urban greening
- tech-based monitoring

Safety and security

- presence of female frontline staff,
- traffic enforcement,
- audit mechanism
- operations during emergencies

Service level improvements

- increase in bus frequency
- caregiving amenities at transit stops,
- suitable schedules,
- well maintained, clean services

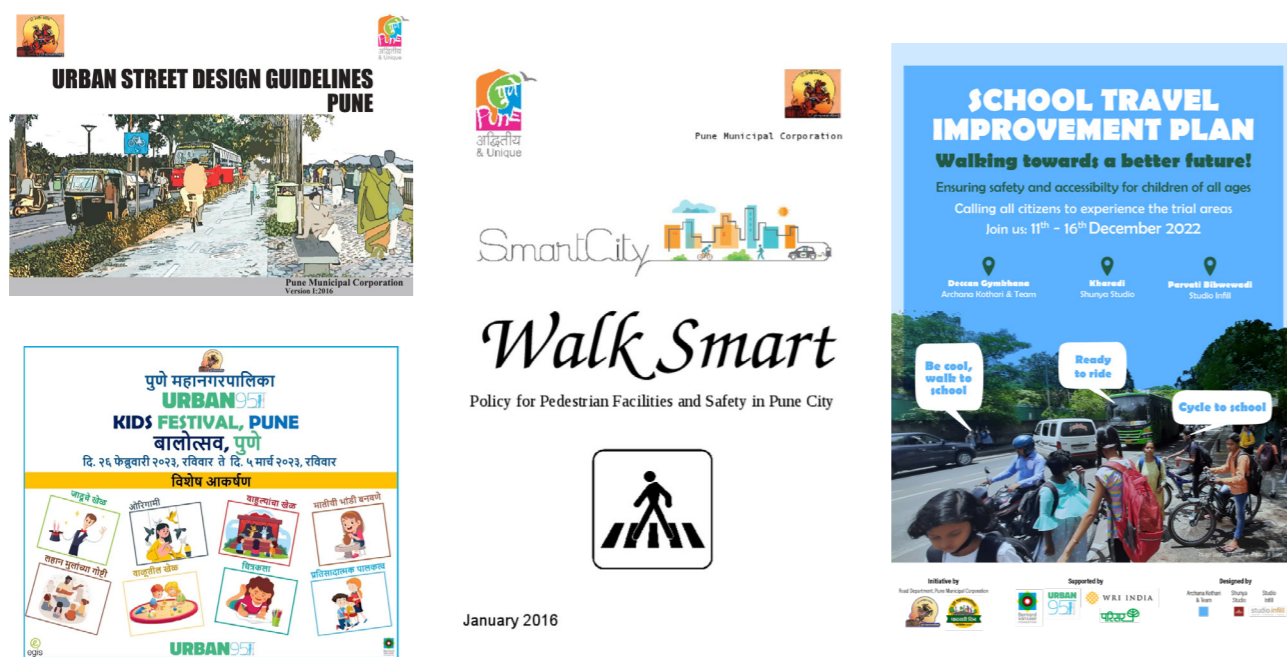
Plan and policy changes

- adoption of ITC-focused policies, guidelines and handbooks for departments

Additionally, monitor if any new programs or actions are being taken by the city which supports children-friendly and women-friendly mobility.

- New Municipal program for road safety – Safe access to schools, vision zero
- Creation of Data repository with ITC and mobility-related data
- Public campaigns by Smart City to walk, cycle with children

Nodal committee to track progress – Nodal committee shall prepare a set of milestone activities to be done in each year by taking approval from the Municipal commissioner and other agency heads. The milestone activity should have clear buy-in from implementation agencies and stakeholders, including corporators, NGOs CSOs, and Residential Welfare Associations. The committee can monitor program activities via quarterly review meetings and expedite necessary actions toward milestone activities in the current year.



Various policies and plans published around young children-centric development by Pune city

Tracking policy and plan changes – Nodal committee shall track and support regulatory changes in existing and new plans and policies that target mobility improvements for ITC. E.g., amending local street design guidelines to include ITC lens, forming new children’s priority zone policy, and creating a traffic calming handbook for ITC zones.

- Number of instances where policy, plan or guidelines was modified to add ITC lens – new chapter, tools, guidelines
- Number of endorsements of ITC Mobility plan, by key stakeholders, top officers, elected representatives
- Inclusion of ITC-friendly mobility references in other concurrent programs and events, such as Pune Pedestrian’s day, car-free day, and cycle to office day.

Develop ITC Mobility Dashboard for evaluation – GIS dashboard can be prepared to evaluate the progress of mobility plan in the long-term. Showcase all ITC priority zones and their program statistics to track yearly progress and assess future plans.

For developing the dashboard, cities shall regularise agency-wise data collection activity, to include minimum data points as follows.

Agency	Data Collection
Road/ Transport	<ul style="list-style-type: none"> • NMT infrastructure data (footpaths length, cycle tracks) • Highly pedestrianized locations/zones • Traffic volume (daily, annual average) • Peak hours • Average speeds of different roads (highways, arterials, collectors, local) • Recurrent traffic congestion locations/ patterns • Blackspots, crash locations
Transit Agency (Bus, Metro, Monorail, Light rail)	<ul style="list-style-type: none"> • Ridership (classified based on age, gender, and abilities), travel patterns, travel cost • Transit infrastructure (stops, stations, platforms) • Transit services (peak hours, parking facilities, fuel, emissions, driver performance) • Existing level of service (% of transit networks, service coverage, waiting time, frequency, affordability)
Traffic Police	<ul style="list-style-type: none"> • Spatial and temporal crash data collection on victims’ age, gender, type of crash, contributing factors / causes, time of the crash, date, location (latitude and longitude), type of road (intersection, midblock, flyovers), and weather conditions. • Blackspots identification

KPIs for monitoring and evaluation of ITC-friendly mobility plan

(Cities can choose relevant indicators or form new ones based on their local context)

Parameters of M&E of ITC-friendly Mobility Plan	Action Points	Key Performance Indicators
ITC Priority Zones	Selection of zones within a city	<ul style="list-style-type: none"> • Completion and approval of ITC Mobility Plan • No. of ITC priority zones identified in the city • No. of ITC priority zones taken up for improvements • No. of projects planned in ITC priority zones
Street Improvement	Street Improvement	<ul style="list-style-type: none"> • No. of street projects and junctions implemented in ITC Priority zones • No. of trials, pilots done for road safety of young children • Lengths of streets improved for ITC mobility • % length of footpath that are designed as per with universal accessibility
	Upgrade Transit stations and surroundings	<ul style="list-style-type: none"> • No. of bus stops, metro stations, IPT stands upgraded in ITC priority zones • No. of major transit stations equipped with caregiver amenities • No. of capacity building sessions conducted with staff for sensitising towards needs of the vulnerable group along with ITC
	Technology-based monitoring	<ul style="list-style-type: none"> • No. of pedestrian traffic signals with signal timings as per children’s walking speed • Whether any technology-based advanced public transport system (APTS) is introduced for communication, maintenance of vehicles, and recording driver performance • % of fleet equipped with APTS
	Urban greening solutions	<ul style="list-style-type: none"> • % of the fleet running on clean energy • Length of streets in which local, sustainable material was used for construction • % or length of streets shaded with tree cover or shading devices • Length of streets equipped with noise barriers • % of footpath shaded by tree cover

Parameters of M&E of ITC-friendly Mobility Plan	Action Points	Key Performance Indicators
Safety and Security	Presence of female frontline staff	<ul style="list-style-type: none"> No. of female frontline staff at ECD services or police officers deployed during off-peak and night hours around transit stops
	Traffic enforcement	<ul style="list-style-type: none"> % of drivers following various traffic rules- no jumping signal, wrong-side driving, illegal parking (through observation survey)
	Audit mechanisms	<ul style="list-style-type: none"> Number of audits of streets, transit stops and vehicles focusing on child safety? No. of street audits conducted, particularly in ITC priority zone % of transit stops and vehicles audited during planning, construction, and operation stage
	Operations during emergencies	<ul style="list-style-type: none"> Emergency action plan developed and followed No. of times the action plan is rehearsed – mock drills
Service level Improvements	Increase in bus frequency around ITC destination	<ul style="list-style-type: none"> Satisfaction ratings related to ease of use, timeliness, comfort, and cleanliness of transit services
	Convenient scheduling and timing of public transit	
	Well-maintained and clean services	<ul style="list-style-type: none"> No. of transit depot / stops equipped with caregiver amenities (list is provided in action plan step 5)
	Caregiving amenities at transit depot / stops, including health and nutrition, play, learning and social interaction	
Policy and guideline changes	Adoption of new ITC-focused policies, programs, handbooks, guidelines	<ul style="list-style-type: none"> No. of new policy, documents, knowledge materials around ITC mobility
	Revisions in existing documents to include ITC lens	<ul style="list-style-type: none"> No. of documents revised, amended or newly created with ITC lens



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List of Annexure:

Annexure 1: **Data checklist** for Developing the ITC-friendly Mobility plan

Annexure 2: **Physical space assessment** near ITC destination

Annexure 3: **In-person survey form** for caregiver interviews

ANNEXURE 1: Data Checklist for Developing the ITC-friendly Mobility plan

S. No.	Data Points	Checklist box
1	Locations of Ward boundary	<input type="checkbox"/>
2	Locations of Slum boundary	<input type="checkbox"/>
3	Locations of Anganwadi	<input type="checkbox"/>
4	Locations of Hospitals (Govt. and Private, including maternity and nursing homes)	<input type="checkbox"/>
5	Locations of Schools (Primary and Pre-primary) and enrolment nos.	<input type="checkbox"/>
6	Locations of Parks, gardens, open spaces	<input type="checkbox"/>
7	Locations of Daycare, Kindergartens, Playschools, Palnaghar)	<input type="checkbox"/>
8	Locations of Amusement parks, zoo	<input type="checkbox"/>
9	Locations of Market places, Malls	<input type="checkbox"/>
10	Road Network with typology	<input type="checkbox"/>
11	Locations of Bus Stops, Bus depots	<input type="checkbox"/>
12	Locations of Metro Stations (existing + upcoming)	<input type="checkbox"/>

ANNEXURE 2: Physical Space Assessment: near ITC Destinations

Time	Date	Survey Location	Surveyor's Name	Weather

1. **Which is the peak duration, and which day have the highest number of young children (0-5 yrs.) visiting the ITC-destination?** (Data shall be collected from facility staff) _____

2. **Number of young children, caregiver, and people observed on a typical day** (This can be collected by counting numbers in 10 minutes duration at the location)

Type of Activity	Infants (0-2)	Toddlers (3-5)	Caregivers	Pregnant women
Standing				
Sitting				
Playing				
Moving around (passing by)				
Waiting for transport				
Interacting/talking with child				
Talking to someone				
Shopping				
Eating/drinking				
Other, specify _____				

3. **Condition of mobility infrastructure connecting to the ITC-destinations:**

- Continuous walkway: Yes / No
- Accessible: Yes / No
- Shaded: Yes / No
- Well-lit: Yes / No
- Green buffer along the street: Yes / No
- Presence of people: Yes / No

- Presence of bus stop: Yes / No
- Condition of nearest Bus stop: Good / Fair / Poor
- Condition of street crossing: Good / Fair / Poor

4. **Which facilities are available within the catchment area?**

- Toilets
- Feeding booths
- Street furniture like benches, places to pause and rest
- Dustbins
- Lighting
- Play area for children
- Water ATM
- Designated parking facility
- Other please specify: _____

5. **Modal split of people visiting the location (transport modes): (This will be collected by observing and counting ITC entering the ITC-destination or within the vicinity for 10 minutes duration)**

Mode of transport	Caregivers with young children
Two-wheelers	
Walk	
Personal vehicles	
IPT (Autorickshaw)	
Buses	
Other: please specify: _____	

Observations

6. **Describe problems you have observed at the site:**

For example: broken footpaths, speeding of vehicles, high traffic volume, related to mobility

ANNEXURE 3: In-person survey form for caregiver interviews

The following questions focus on understanding young children and their caregiver's access and mobility in the city. The research team will use this data to infer travel patterns, mobility needs, key challenges, and potential solutions to retrofit young children and their caregivers' lens in urban mobility planning.

Time	Date	Area of neighbourhood	Survey Location (name of hospital, park, anganwadi)	Surveyor's Name

A. Caregiver background

1) Which neighbourhood in the city do you live in?

Please specify nearest landmark and pin code: _____

2) Gender (by observation)

- Male
- Female
- Others
- Do not want to specify

3) How many children do you have? _____

4) How old is your child? (In years) _____

- 0-3
- 3-5
- 5-14
- 14-18

5) Which of the following applies to you?

- Pregnant woman
- Parent (of children under 5-year-old)
- Parent (of children between 5 and 18)
- Caregiver (elder sibling, grandparents, Close relative)
- Caregiver (Nanny, Anganwadi worker)
- Other: Please specify: _____

6) What is your age group? (in years)

- Below 15
- 15 – 25
- 25 – 35
- 35 – 55
- 55 – 65
- 65 and above

7) What is your occupation?

- Student
- Homemaker
- Service
- Business
- Other (specify): _____

B. Trip patterns (Origin and Destination / Trip Chaining)

Current Trip Specific Questions:

8) What is your purpose of visit here/to your destination?

Tick	Personal need	Tick	Child's need
<input type="radio"/>	Shopping (Purchase groceries, vegetable, clothes, etc.)	<input type="radio"/>	Medical
<input type="radio"/>	Social visit (Meet friends and family)	<input type="radio"/>	Education
<input type="radio"/>	Bank	<input type="radio"/>	Recreational (zoo, garden, parks, etc.)
<input type="radio"/>	Religious place	<input type="radio"/>	Other (specify): _____
<input type="radio"/>	Work		
<input type="radio"/>	Recreational (outside city)		
<input type="radio"/>	Other (specify)_____		

9) Where are you coming from and by which mode of transport?

Tick	Origin	Specify: Name	Tick	Mode of transport
<input type="radio"/>	Home	Not required	<input type="radio"/>	Walking *
<input type="radio"/>	Vegetable, grocery market		<input type="radio"/>	Cycle
<input type="radio"/>	Malls, shopping centres		<input type="radio"/>	Bus **
<input type="radio"/>	Office, workplace, bank		<input type="radio"/>	Metro
<input type="radio"/>	Government hospital		<input type="radio"/>	Autorickshaw (Personal)***
<input type="radio"/>	Private clinic or hospital		<input type="radio"/>	Autorickshaw (Shared)#
<input type="radio"/>	Primary school, day care, kindergarten		<input type="radio"/>	2-wheeler (personal) ***
<input type="radio"/>	Playground, Parks, garden or public space		<input type="radio"/>	4-wheeler (personal) ***

<input type="radio"/>	Religious places such as temple, church, mosque			
<input type="radio"/>	Anganwadi			
<input type="radio"/>	Other: please specify_____			

10) How much time did it take to reach here?

- 0-15 mins
- 15-30 mins
- 30-60 mins
- 60 mins

11) Where are you heading now? _____

Tick	Origin	Specify: Name	Tick	Mode of transport
<input type="radio"/>	Home	Not required	<input type="radio"/>	Walking *
<input type="radio"/>	Vegetable market, grocery shops		<input type="radio"/>	Cycle
<input type="radio"/>	Malls, shopping centres		<input type="radio"/>	Bus **
<input type="radio"/>	Office, workplace, bank		<input type="radio"/>	Metro
<input type="radio"/>	Government hospital		<input type="radio"/>	Autorickshaw(Personal)
<input type="radio"/>	Private clinic or hospital		<input type="radio"/>	Autorickshaw (Shared) #
<input type="radio"/>	Primary school, day care, kindergarten		<input type="radio"/>	2-wheeler (personal)***
<input type="radio"/>	Playground, parks, garden or public space		<input type="radio"/>	4-wheeler ***
<input type="radio"/>	Religious places such as temple, church, mosque			
<input type="radio"/>	Anganwadi			
<input type="radio"/>	Other_____			

12) How much time will it take to go to next destination?

- 0-15 mins
- 15-30 mins
- 30-60 mins
- 60 mins

13) Before heading home, do you plan to visit any other destinations with your child?

Tick	Origin	Specify: Name	Tick	Mode of transport
<input type="radio"/>	Home	Not required	<input type="radio"/>	Walking *
<input type="radio"/>	Vegetable, grocery markets		<input type="radio"/>	Cycle
<input type="radio"/>	Malls, shopping centres		<input type="radio"/>	Bus **
<input type="radio"/>	Office, workplace, bank		<input type="radio"/>	Metro
<input type="radio"/>	Government hospital		<input type="radio"/>	Autorickshaw(Personal)
<input type="radio"/>	Private clinic or hospital		<input type="radio"/>	Autorickshaw(Shared)#
<input type="radio"/>	Primary school, day care, kindergarten		<input type="radio"/>	2-wheeler ***
<input type="radio"/>	Playground, parks, garden or public space		<input type="radio"/>	4-wheeler ***
<input type="radio"/>	Religious places such as temple, church, mosque			
<input type="radio"/>	Anganwadi			
<input type="radio"/>	Other_____			

* : redirect the questions to pedestrians:

** : redirect the questions to public transport buses

: redirect the questions to shared autorickshaw / Intermediate Public Transport

***: redirect to personal vehicles (mobility as barriers)

14) How much time will it take to go to the next destination before heading home?

- 0-15 mins
- 15-30 mins
- 30-60 mins
- 60 mins

15) Do you own a personal motorized vehicle?

- No
- Two-wheeler
- Four-wheeler
- Autorickshaw
- Other / multiple: please specify: _____

16) How often do you go out with your child (outside your society) on a TYPICAL DAY?

- One
- Twice
- Thrice
- More than three times

17) How many days in a TYPICAL WEEK do you go out with your child (outside your society)?

- One
- Two
- Three
- Four
- Five
- Six
- Seven

18) If you have a government facility (Anganwadi, PHC) for your child closer to your house, would you use it and why?

Response	Why, yes?	Why, no?
Yes	Closer to my house	Personal preference
No	Affordable	Not affordable
	Quality of service of these facilities is good	Quality of service of those facilities is not preferred
	Less waiting time, more efficient	Longer waiting time, not efficient
	Friendly staff	Non-friendly staff
	Safe surroundings	Unsafe surroundings
		Never used government facilities
		Too crowded
	Other:	Other:

19) If you have a bus stop closer to your house, would you use it while commuting with your child and why?

Response	Why, yes?	Why, no?
Yes	Closer to my house	Personal preference
No	Affordable	Not affordable
	Quality of service: AC noise-free buses, reserved seats	Quality of Service: low frequency, longer waiting time, travel time, too crowded
	Prefer it than driving in hectic traffic	Prefer to drive than taking a bus in traffic
	Friendly staff	Non-friendly staff
	Safe and clean surroundings	Unsafe and unhygienic surroundings
	Other:	Other:

Pedestrian users

20) How is your walking experience with your young child?

Parameters	Rate level: Good / Average/ Poor
Walking on footpath – shade, comfort, access	
Crossing streets with a child	
Safety in surrounding environment	
Cleanliness in surrounding environment	
Resting opportunities along the way	
Opportunities to play and interact with your child on the way	
Behaviour of surrounding people towards you and your child	

21) What challenges do you face while walking here with your young child? (Check all that apply)

- Broken, inaccessible and not shaded footpaths
- Doesn't feel safe to walk due to bad lighting or dingy spaces at night
- Littering, bad maintenance of footpath
- Too much noise due to high vehicular traffic, honking and loud bike exhaust
- Unsafe and dangerous situations while crossing the streets with a young child
- Encroachments, parking along the street obstructs walking with a young child
- Lack of pause and rest spaces along with dedicated play, learn and interactive elements for children for convenient travel
- Other: Please specify: _____

Elaborate here your experience: _____

22) How often do you walk with your child outside your society in your neighbourhood?

- Everyday
- 2-3 days in a week
- Once a week
- Once a month

23) How does your child typically accompany you while walking on the streets?

- I carry my child in my hands
- My child walks while I hold his/her hand
- My child walks independently alongside me
- I carry my child in a stroller

24) What do you think will improve your walking experience with your child?

- Continuous wide footpaths with easy access for strollers
- Well-lit and shaded footpaths at all hours
- Shortcut walking routes to reach my usual destinations

- o Garbage-free and well-maintained footpaths
- o Lower traffic noise due to less congestion, honking, and loud bike exhaust/silencer
- o Safe crossings are available on my way to destinations
- o No encroachment of parking or any other elements obstructing the right of way of pedestrians
- o Introducing resting spaces along with children's play and interactive elements on footpaths / near bus stops
- o Other, please specify _____

Public Transport Users: Buses

25) How is your public transport experience with your child?

Parameters	Rate levels: Good / Average / Poor
Waiting at bus stops – time and comfort	
Experience while coming to and from bus stop	
Boarding and alighting experience	
Comfort of traveling in a bus	
Operations – knowing info on timing and bus routes	
Behaviour of driver and conductor towards you and your child	
Behaviour of passengers towards you and your child	

26) What is your average waiting time at the bus stop?

- o Below 5 mins
- o 5-15 mins
- o 15-30 mins
- o More than 30 mins

27) What challenges do you face while commuting with your child in buses? (Check all that apply)

- o Irregular frequency and unreliable timing of buses
- o No direct bus services
- o Higher journey time, including waiting time, compared to personal vehicle
- o Difficulty in boarding and alighting
- o Broken and unmaintained waiting facilities
- o Bus stops are not closer to home
- o Bus stops are not closer to the destination
- o Crowded buses
- o High travel cost
- o Information is not available about bus timings/routes
- o Unclean buses and bus stops
- o Non-availability of reserved seats for young children

- o Rash driving and harsh behaviour of drivers / conductors / people towards young children
- o Unavailability of facilities like diaper changing, feeding room at the bus stop
- o Other: please specify _____

28) Which mode of transport do you use while traveling to and from the bus stop?

Tick	Travel to bus stop	Tick	Travel from bus stop
<input type="radio"/>	Walking	<input type="radio"/>	Walking
<input type="radio"/>	Cycle	<input type="radio"/>	Cycle
<input type="radio"/>	Bus	<input type="radio"/>	Bus
<input type="radio"/>	Metro	<input type="radio"/>	Metro
<input type="radio"/>	Personal Autorickshaw	<input type="radio"/>	Personal Autorickshaw
<input type="radio"/>	Shared autorickshaw	<input type="radio"/>	Shared autorickshaw
<input type="radio"/>	2-wheeler	<input type="radio"/>	2-wheeler
<input type="radio"/>	4-wheeler	<input type="radio"/>	4-wheeler

29) What is the condition of bus stops in your area?

- o Clean, shaded, and well-maintained
- o Clean but partially shaded and somewhat maintained
- o Unclean, not shaded, and deteriorated
- o Other: Please specify _____

30) What is the condition of the buses you use for the commute?

- o Clean and well-maintained
- o Clean, but some wear and tear
- o Unclean and deteriorated
- o Other: Please specify _____

31) Mention anything which you find useful or comfortable while riding the bus?

32) Any expectations from transit agencies and the government?

Intermediate Public Transport Users: Shared-Autorickshaws or Shared-Vans or shared-six seaters

33) How is your shared-autorickshaw experience with your child?

Parameters	Rate levels: Good / Average / Poor
Waiting at autorickshaw stands	
Comfort and safety within autorickshaw	
Behaviour of driver towards you and your child	
Behaviour of passengers towards you and your child	

34) Where do you typically board shared IPTs?

- Nearest Auto stand
- Nearest Transits stop (Bus stop, Metro Station, Railway Station)
- Adjacent street
- Nearest junction

35) What is the typical waiting time for a shared autorickshaw?

- Below 5 min
- 5-15 min
- 15-30 min
- More than 30 mins

36) What challenges do you face while commuting with your child in autos? (Check all that apply)

- Higher journey time, including waiting time, compared to personal vehicle
- Difficulty in boarding and alighting
- Unclean and deteriorated autos and auto stands
- High travel cost
- Rash driving and harsh behaviour of drivers / people towards young children
- Other: please specify: _____

37) What is the condition of auto stands in your area?

- Clean, shaded, and well-maintained and designated location
- Partially shaded and somewhat maintained
- Unclean, not shaded, and deteriorated
- No auto stand near my home (Unavailability of Auto stand)
- Other: Please specify _____

38) What is the condition of the auto you use for the commute?

- Clean and well-maintained
- Clean, but some wear and tear
- Unclean and deteriorated
- Other: Please specify _____

39) Do you often find women auto drivers during your commute?

- Yes
- No

Personal vehicle users: (People who have selected Two-wheelers and Four-wheelers)

40) What are your main reasons for traveling by personal vehicle with your child?

- I need to drop off and pick up children on the way to and from work
- Ease in completing multiple personal tasks along with child's need (General convenience)
- Usually, I travel long distances with my child
- It's quicker than public transport
- I have no other alternatives
- No direct bus routes are available
- I do not feel safe to walk with my child on streets
- It's cheaper than public transport
- I have disability that affects my travel choice
- Other: please specify _____

41) If you want to go to nearby place with your child, how would you go and why?

Walking	Personal vehicle
Why (Reasons)	Why (Reasons)
It is nearby and walking takes less time	Personal vehicle will be fast to reach
Want my child to walk on streets	I cannot walk so much with my child because it is tiring
Nearby streets are good for walking with a child	Nearby streets are not good for walking with a child
Parking can be an issue so prefer walking	Other: (please specify)
Other: (please specify)	

Public Transport

42) Do you travel with your child in public transport?

- Yes, regularly
- Yes, sometimes
- Never

43) Which of the following possible measures would give you the motivation to use public transport with your child? (Check all that applies)

- o More frequent services
- o Direct bus services
- o Faster journey time with less waiting time
- o Ease of boarding and alighting
- o Well-shaded, modern waiting facilities
- o Bus stops closer to home
- o Bus stops closer to destinations
- o Buses are less crowded
- o Cheaper fares
- o Information is easily available about bus timings/routes
- o Cleaner buses and bus stops
- o If priority queuing and seating arrangements are introduced for caregivers with young children
- o Drivers / conductors / people are sensitive towards the needs of young children and caregivers
- o Availability of facilities like diaper changing, feeding room at the bus stop
- o Not applicable as there is no public transport near to where I live
- o Nothing would encourage me to opt for public transport with my child
 - o **Why?**
 - o Live too far away
 - o Dangerous and feel unsafe to travel with a young child
 - o Takes too long compared to a personal vehicle
 - o Air pollution and noise pollution is too high
 - o Lot of things to be carried while commuting with a young child
 - o Other (specify)_____

- o Not applicable as we live too far away
- o Nothing would encourage me to walk with my child
 - o **Why?**
 - o Live too far away
 - o Dangerous and feel unsafe to cross the roads with a young child
 - o Takes too long compared to a personal vehicle
 - o Air pollution and noise pollution are too high
 - o Lot of things to be carried while commuting with a young child
 - o Other (specify)_____
 - o Other (specify)_____

46) Which of the following scenario would motivate you to adopt walking with an infant, toddler/toddler? (Select one option in each row)

Footpaths		
		
Continuous footpath Well-lit and shaded at all hours	Continuous wide footpaths Resting spaces along with children's play and interactive elements on footpaths	Continuous wide footpaths with easy access for strollers Interactive elements on footpaths Shaded footpaths at all hours Garbage-free and well-maintained space
Road Crossing		
		

Walking

44) Do you walk with your child outside your society in your neighbourhood?

- o Yes, everyday
- o Yes, regularly
- o Yes, sometimes
- o Never

45) Which of the following possible measures would motivate you to adopt walking with a young child? (Check all that apply) (OR use next question format)

- o Continuous wide footpaths with easy access for strollers
- o Well-lit and shaded footpaths at all hours
- o Shortcut walking routes to reach my usual destinations
- o Garbage-free and well-maintained footpaths
- o Lower traffic noise due to less congestion, honking, and loud bike exhaust/silencer
- o Safe crossings are available on my way to destinations
- o No encroachment of parking or any other elements obstructing the right of way of pedestrians
- o Introducing resting spaces along with children's play and interactive elements on footpaths / near bus stops

