



Nurturing
Neighbourhoods
Challenge

Streets and intersections

Design Checklist for streets and intersections
for infants, toddlers and caregivers

Note: This checklist is prepared for stakeholders in NNC Cities to test and provide feedback on the contextualisation of the solution for the city





Nurturing Neighbourhoods Challenge

The Nurturing Neighbourhoods Challenge is hosted by the Smart Cities Mission, Ministry of Housing and Urban Affairs, Government of India, in collaboration with Bernard van Leer Foundation and with the technical support of WRI India.

This Challenge aims to incorporate a focus on neighbourhood-level improvements that promote healthy early childhood development (0-5-year-old children) in the planning and management of Indian cities.

Introduction

Streets are the first point of interaction with the public realm for all. They not only serve as movement corridors for vehicles but people as well. Streets are also spaces for people to interact, recreate, sit and relax, shop and eat. Hence it is important to design streets that are safe, accessible, playful, green and inclusive.

Goal:

- Adopt ITC lens in neighbourhood development
- Safe and inclusive street design ensuring healthy, stimulating experiences for ITC on streets

Understand ITC profiles and their needs on streets

Collect data of existing streets through audit checklists

Assess existing level of service of streets for ITCs

Improve through ITC-oriented design strategies

Apply street design tools appropriate to ITCs

Overview of ITC-oriented street design process

This document provides a checklist of various street design elements, that can be referred to by government agencies and urban practitioners to design young children and caregiver-friendly streets in a city or a neighbourhood.

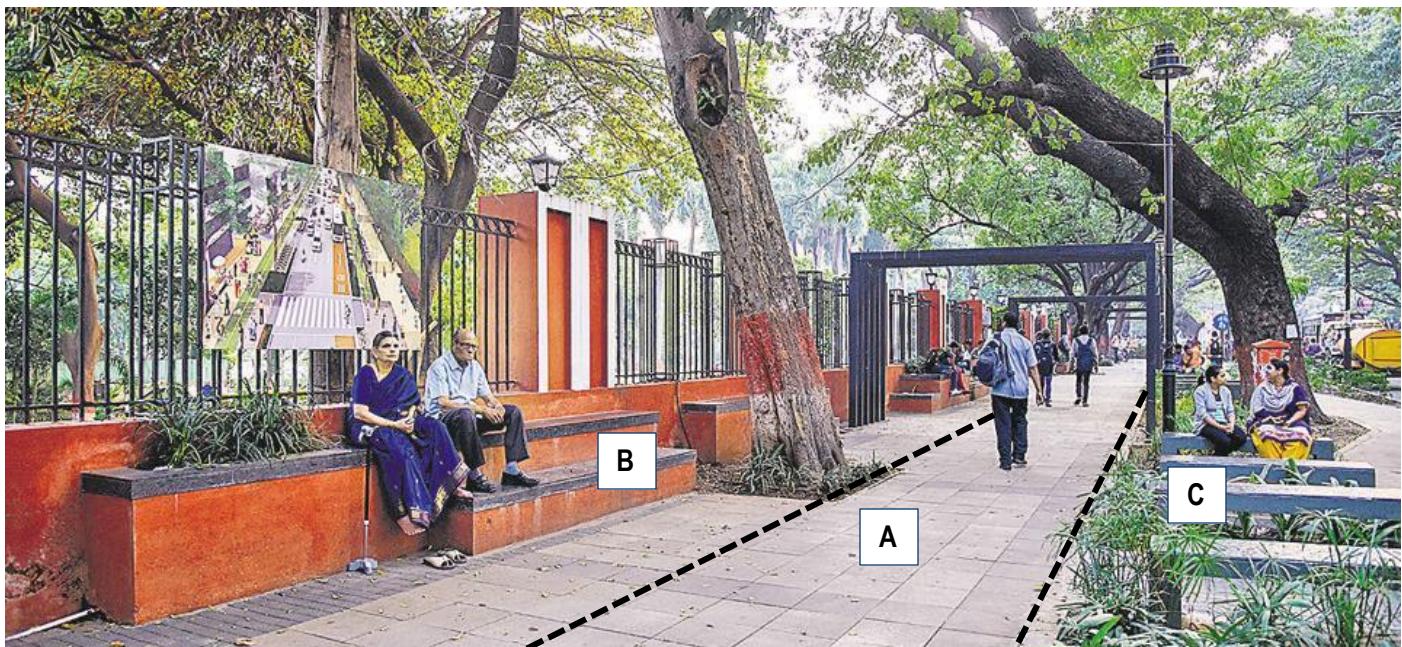
1. Footpaths
 - A. Walking area
 - B. Building edge
 - C. Buffer and Multi-utility zone
2. Rest and pause points
3. Stimulating experiences at 1m height
4. Traffic calming elements
5. STOP line distance
6. Visibility on streets
7. Street lighting
8. Wayfinding and signages
9. Seating
10. Mid-block crossings and refuge islands
11. Junctions
12. Enhancing climate resilience

Above categories have been identified considering areas with high footfall of young children and their caregivers.



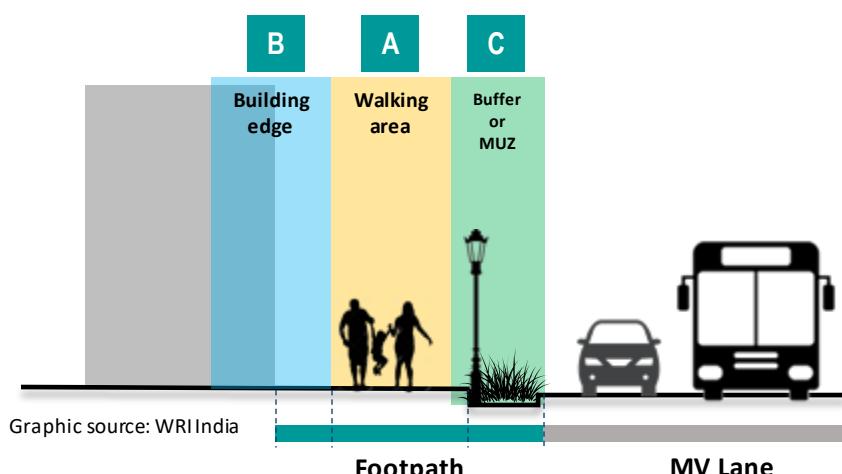
1. Footpath –

Footpaths are essential components of streets and the primary space for pedestrian movement. They attract people to engage in face-to-face activities, support businesses and help to facilitate a dynamic street life. While developing streets for young children and their caregivers hence it is crucial to focus on creating pedestrian-oriented streets. Footpaths should be part of a continuous network and connected with pedestrian crossings. They should be safe, accessible, green, playful, inclusive, comfortable, and attractive with facilities that provide accommodations for people of all ages and abilities.



Source: <https://www.hindustantimes.com/bhopal/pune-s-footpaths-get-a-welcome-makeover/story-9YTc3snNJrvZXsyqOprCXI.html>

Footpath zones:



Provide footpath such that it has 3 distinguished zones:

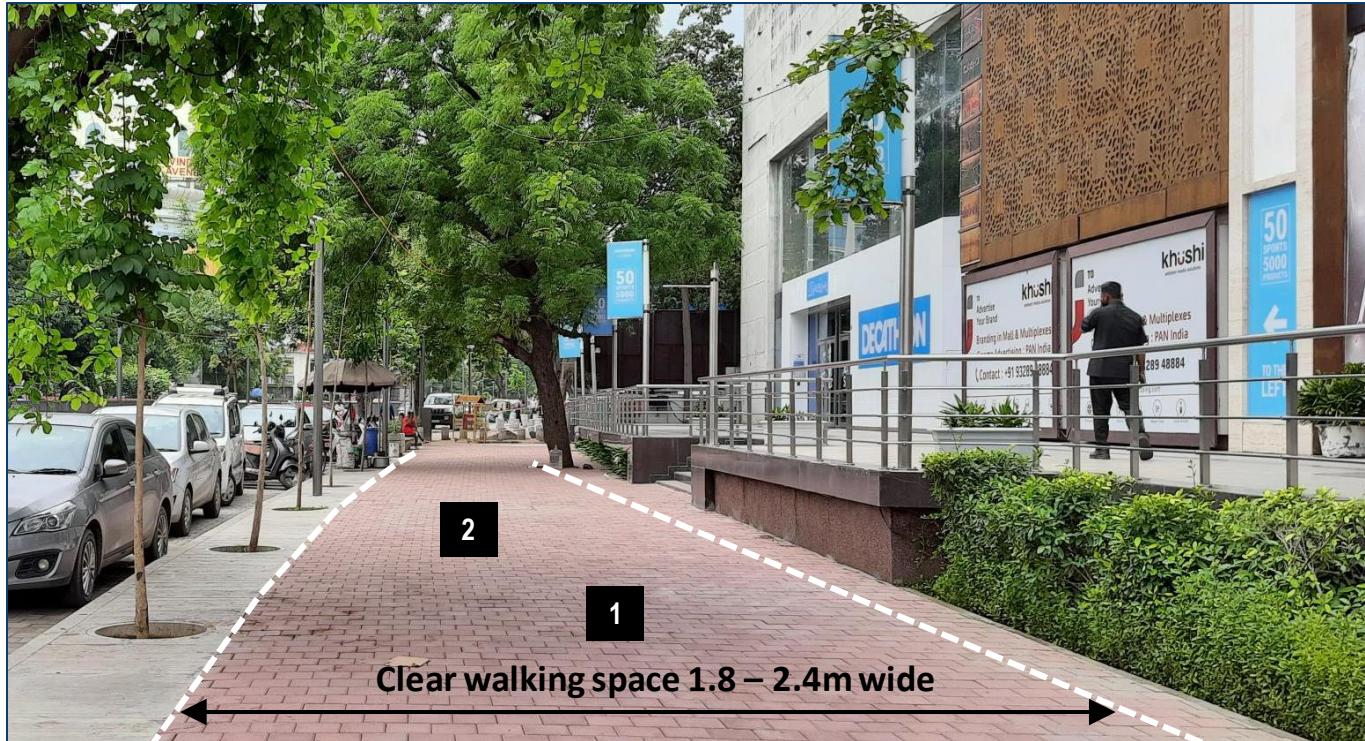
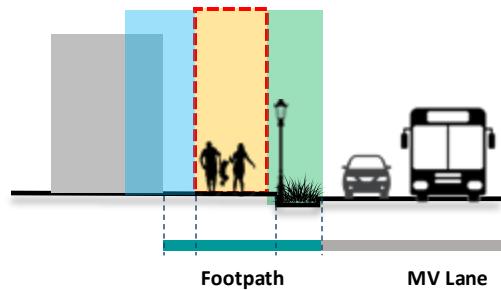
- A** Walking area – clear walking space of **1.8–2.4m width**
- B** Building edge – space between building and walking area with **0.5–1m width**
- C** Buffer or Multi-utility zone (MUZ) – buffer between walking area and vehicular carriageway (buffer – min. **0.5–1m wide**). MUZ – (**atleast 2.5m wide**)

Width of buffer/MUZ should be decided based on vehicular speed on the street– higher the vehicular speed, wider the buffer/MUZ should be provided.

The building edge and buffer area can be treated in various ways based on local context and needs.

1. Footpath –

A Walking area:



Source: Arunima Sen, WRI India



- 1** Provide **continuous 1.8m – 2.4m wide clear walking space** to ensure safe walking

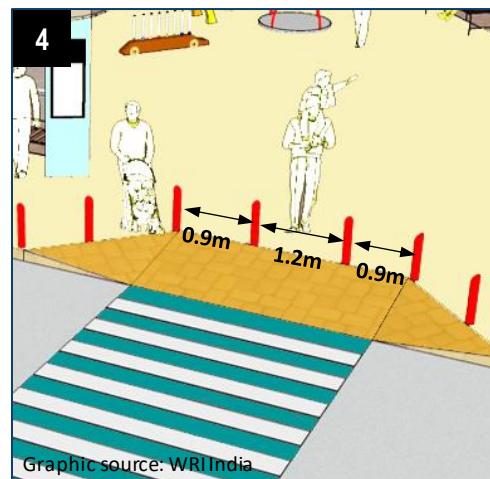
- 2** Ensure a **clear walking space with no obstructive elements on the footpath** such as poles, utility boxes to enhance driver's visibility

- 3** Provide **tactile paving strip of suitable anti-skid material along walkway** for universal accessibility

- 4** In case of **level differences in the footpath**, provide **ramps with slope 1:15-1:20** for convenient walking



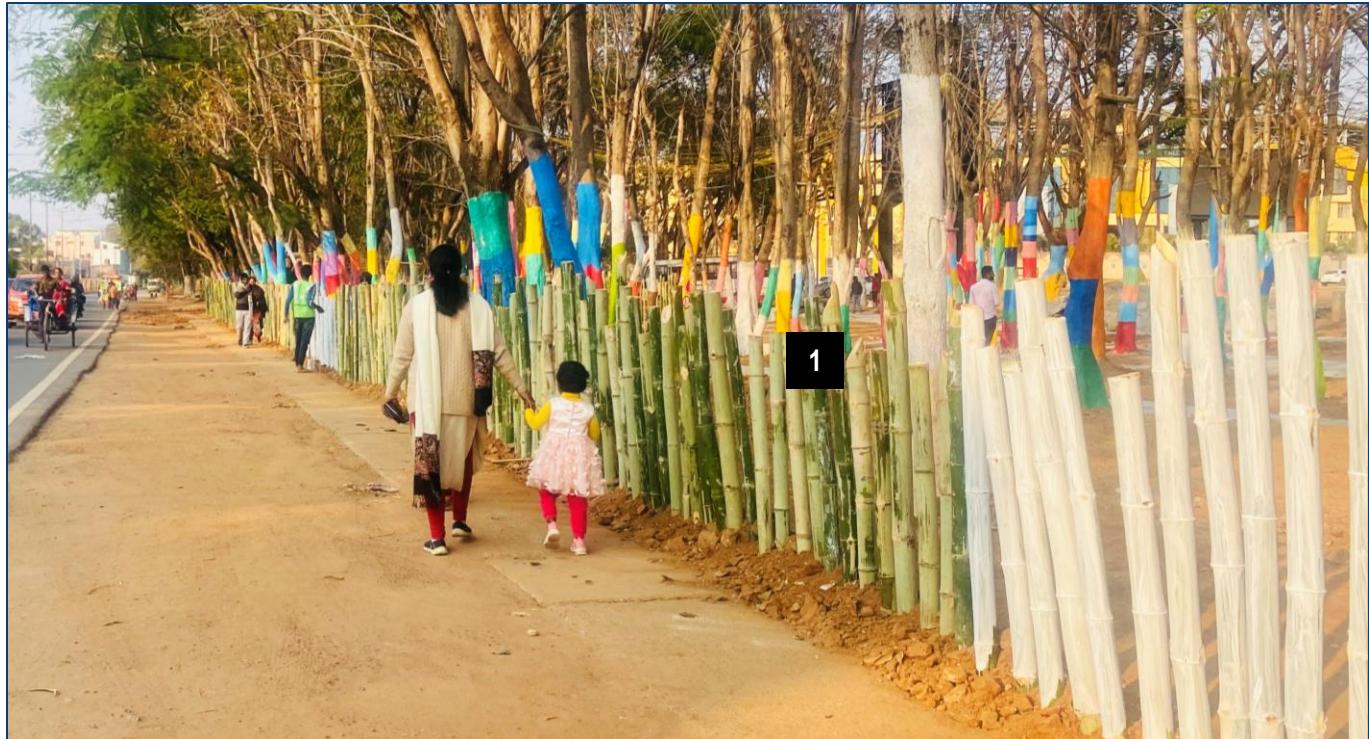
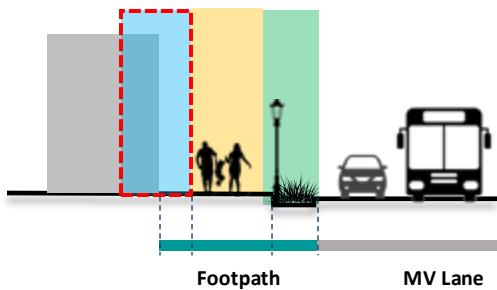
Graphic source: WRI India



Graphic source: WRI India

1. Footpath –

B Building edge:



Source: Arunima Saha, WRI India

- 1 Ensure porous /see through, interactive compound walls especially at 95 cm



Source: Visakha KA, WRI India

- 2 On dead edge walls, provide murals painted with vibrant colours, green planters and creepers, hollow blocks

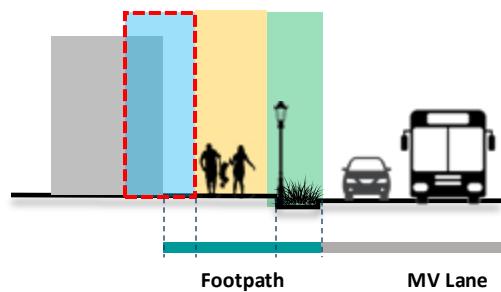


Source: Oliver Förstner / Alamy Stock Photo

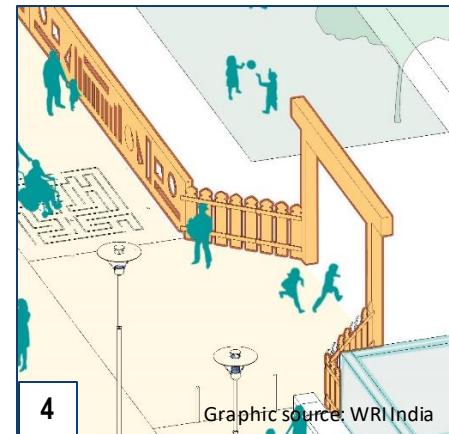
- 3 For commercial streets, provide colonnades, building edges with steps, katta, series of planters to allow interaction

1. Footpath –

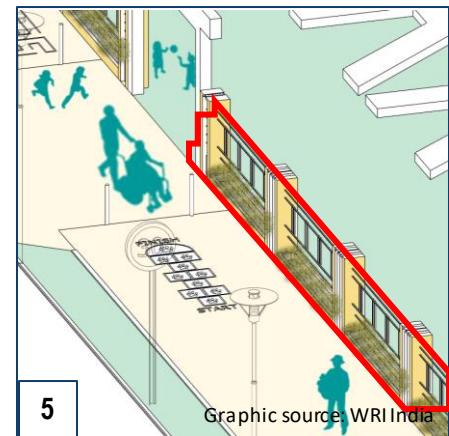
B Building edge:



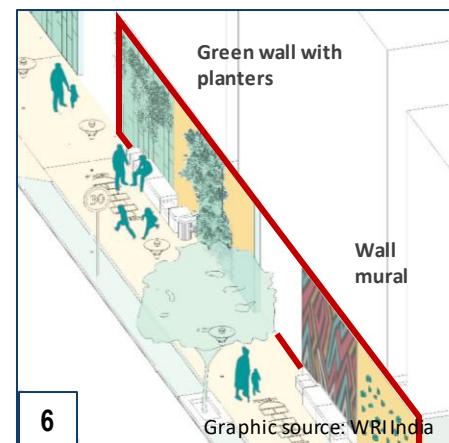
- 4 For ECD premises, provide **interactive porous boundary wall** with interactive openings



- 5 For parks and public spaces, provide **low height porous green wall** as the boundary

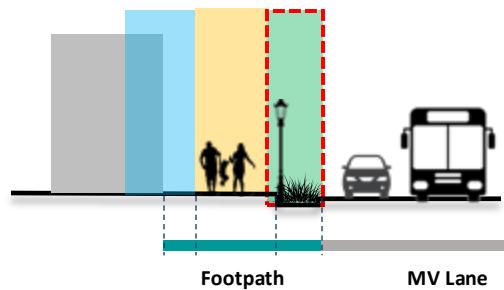


- 6 In case of **long dead boundaries**, place interactive elements at every 50m

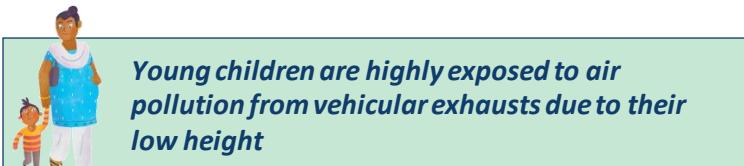


1. Footpath –

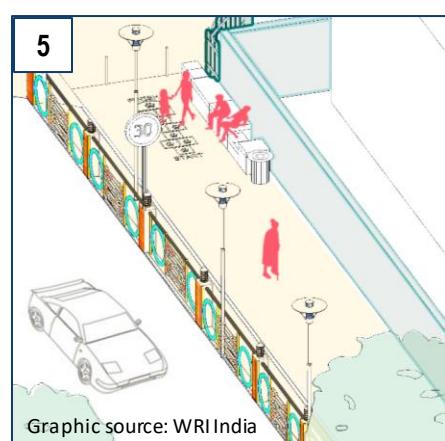
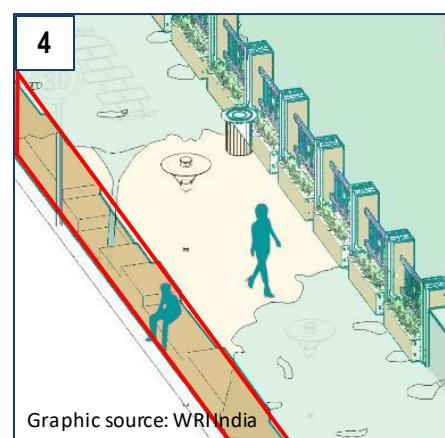
C Buffer:



Source: <https://oasisdesigns.org/pune.asp>



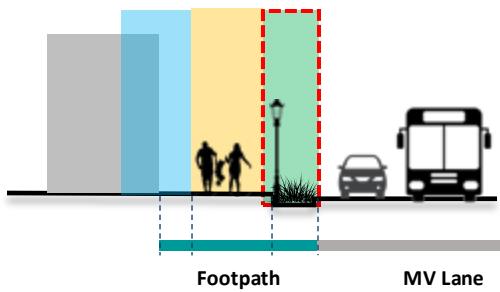
- 1 Provide a **green buffer** with minimum width of **0.5m-1m** to provide safety from vehicular traffic
- 2 Height of the green buffers should not be more than **0.8m** so that it does not block the visibility of the toddler.
- 3 Bio-swales, tree trenches can be integrated within green buffer
- 4 Along parks and public spaces, provide a **45cm Short wall** as buffer and seating edge
- 5 Along ECD premises, provide interactive railing such as Abacus railing at 95cm as buffer between vehicular and pedestrian movement



1. Footpath –

c Multi-utility zone (MUZ):

Often streets have haphazard carriageway, with encroachment along the footpath (such as unorganized parking, vending activities). In such cases, the same effective ROW maybe re-organized to provide uniform carriageway, any additional space maybe absorbed into the footpath to provide a Multi -utility zone (MUZ), with shaded seating , play pockets, dedicated vendor spaces, tree trenches, lighting, dustbins



Source: <http://oasisdesigns.org/ipmarg.asp>

1 Provide shaded seating and play pockets integrated within Multi-utility zone (MUZ) of width min. 2.5m



2 Provide clustered seating in the MUZ to create a safe pause point and ensure eyes on the street

3 Provide line of trees in the MUZ to ensure shaded seating and walkway

4 Provide street elements such as lighting, signages in the MUZ / buffer to avoid obstructions in the walking area

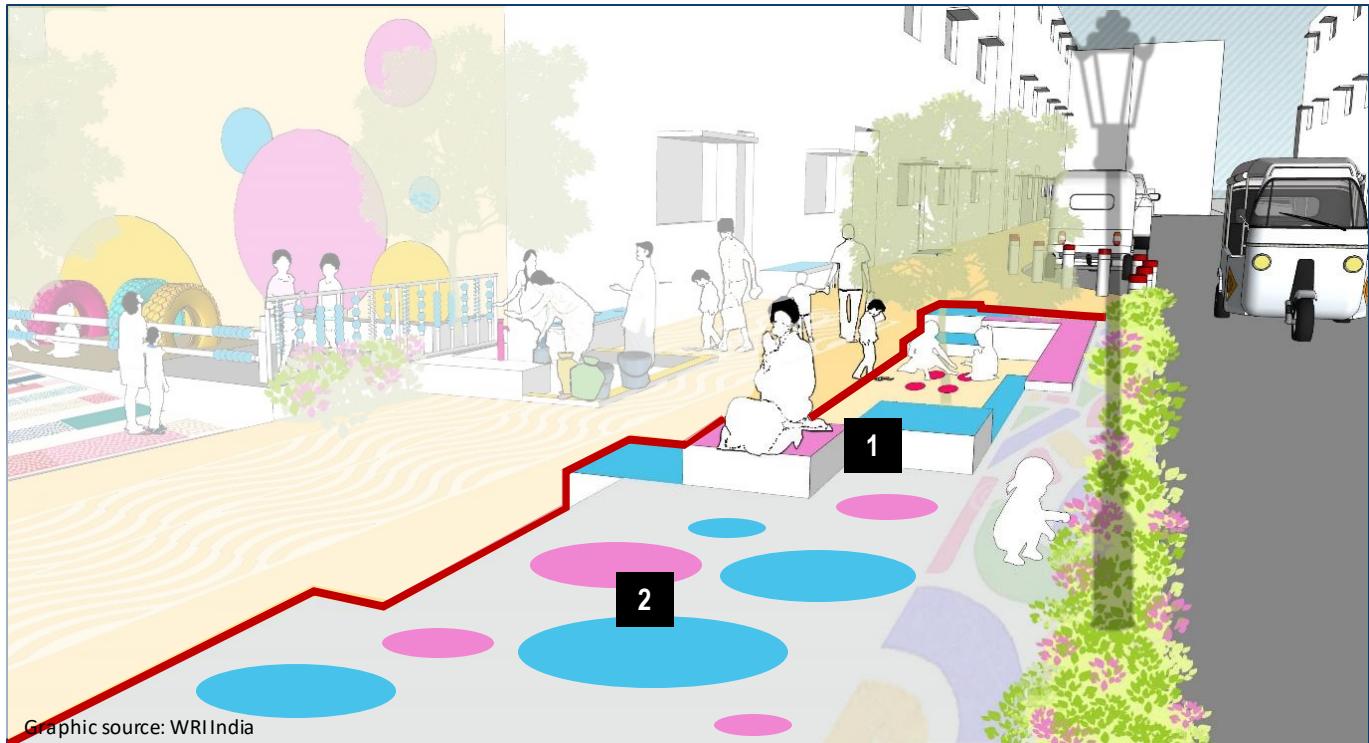


(See Page 10 for more details on Rest and Pause points)

2. Rest and pause points –

Pedestrian movement in the footpath should be supported with rest and pause points at regular intervals (every 50-100m), especially along key young children and caregiver-oriented destinations (such as near ECD services, parks and public spaces, commercial areas, transit stops).

Rest and pause points may be integrated with the buffer / MUZ. These spaces should be **supported with shade (through trees or canopies or pergolas), lighting, dustbins, dedicated vendor spaces** to ensure eyes on the street.

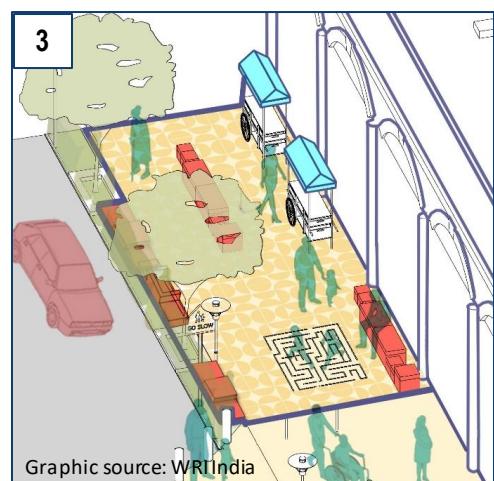


1 Provide shaded clustered seating in the pause point to ensure eyes on the street

2 Provide interactive elements such as sidewalk games, interactive wall surfaces, sensory elements such as flowering plants in the pause points

3 Ensure dedicated vendor zones in the pause points to activate the space and ensure eyes on the street

4 Provide amenities such as drinking water kiosks at child & adult height, dustbins, adequate lighting, to ensure comfort in the pause points



Graphic source: WRI India

2. Rest and pause points –

A Along ECD services:

Integrate pause point with pick-up and drop-off point along the entrance for ECD service premises



- 1** Ensure wide and legible, highlighted entrance of ECD service (atleast 3m wide)
- 2** Provide shaded waiting spaces, play pockets with interactive elements @95cm height in front of ECD service
- 3** Provide clear and wide footpath space to allow safe walking
- 4** Provide a green buffer to protect ITCs from traffic outside ECD service premises
- 5** Ensure safety and comfort with enhanced pedestrian lighting and line of trees
- 6** Provide traffic calming elements and signages to slow down vehicular traffic near entrance of ECD service

2. Rest and pause points –

B Along parks and public spaces:

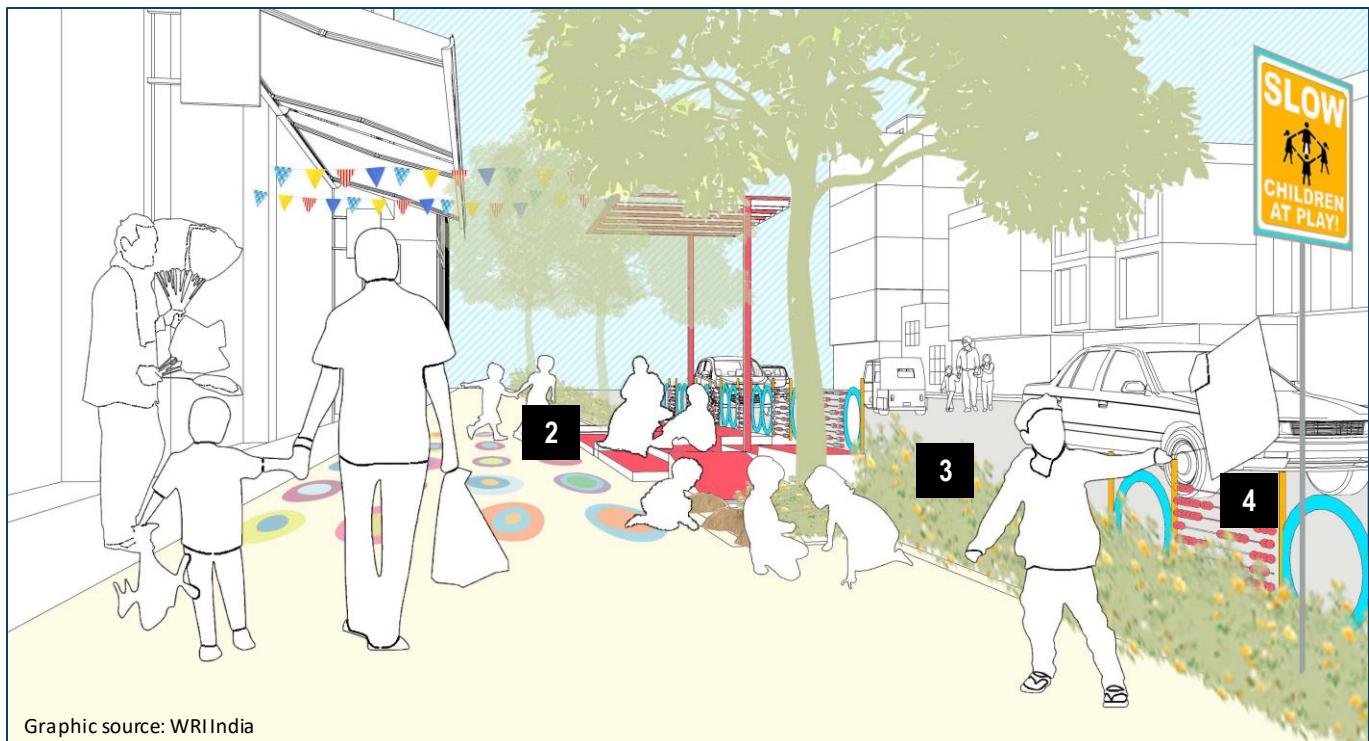
Integrate pause point along the entrance for parks, playgrounds and other public spaces



- 1** Ensure wide and legible, highlighted entrance of park / playground (atleast 3m wide)
- 2** Provide shaded waiting spaces, play pockets with interactive elements @95cm height in the pause point
- 3** Provide clear and wide footpath space to allow safe walking
- 4** Provide a green buffer to protect ITCs from traffic outside park premises
- 5** Ensure dedicated vendor zones in the pause point to activate the space and ensure eyes on the street
- 6** Ensure safety and comfort with enhanced pedestrian lighting and line of trees
- 7** Provide traffic calming elements and signages to slow down vehicular traffic near entrance of park / playground

3. Stimulating experiences at 1m along footpath –

While streets are mostly used as movement corridors and extended spaces for recreation and interaction, it is important to provide stimulating experiences along the streets for young children. Footpaths should be provided with **stimulating experiences at 1m height to engage young children. Informal play and sensory elements should be provided along the footpath to attract young children in the form of touch, smell, sight. These interactive elements may be integrated in the rest and pause points.**



Graphic source: WRI India

- 1 Provide pop-up play elements such as swings, seesaw, etc. for play

1



- 2 Provide floor and wall-painted games and colourful patterns as informal wayfinding as sidewalk games to engage children

- 3 Provide variety of flowering plants at the green buffer to stimulate sensory experiences

- 4 Provide interactive railings such as abacus railing at 95cm for play and protection

- 5 Provide colorful urban furniture such as low-height seating, benches

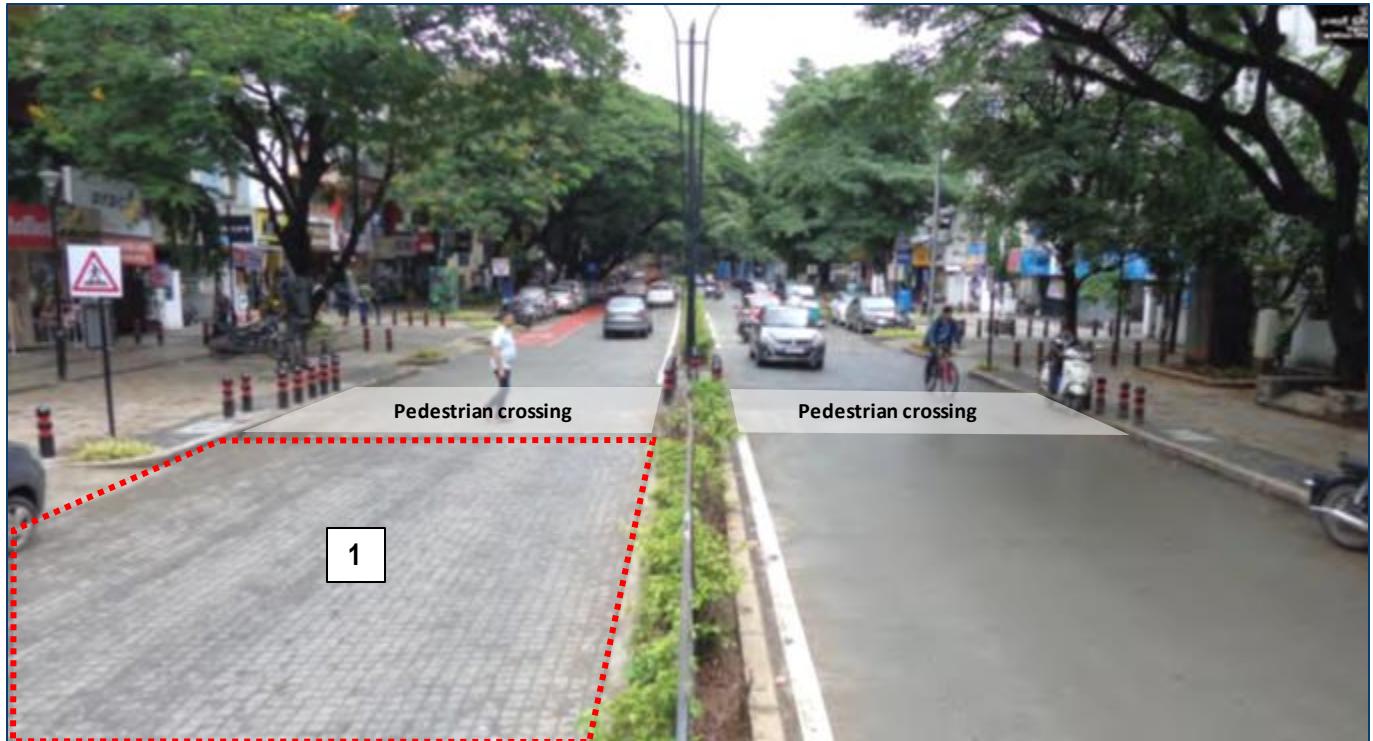
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4. Traffic calming measures –

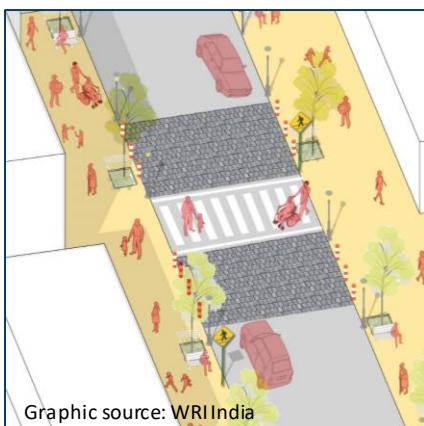
- 1 Provide traffic calming measures before pedestrian crossings, especially near young children and caregiver-oriented destinations to slow down vehicles prior to the crossing.

Traffic calming is especially crucial for streets in hilly areas, where the streets have steep slopes

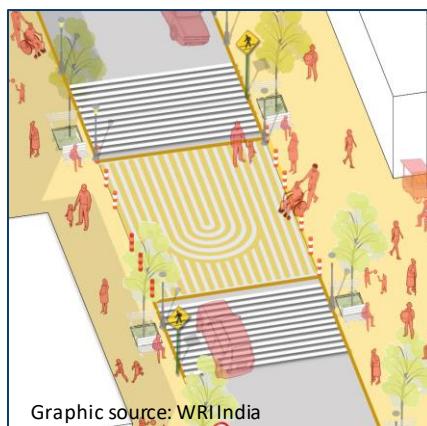


Source: <https://nacto.org/wp-content/uploads/2017/09/Pune.pdf>

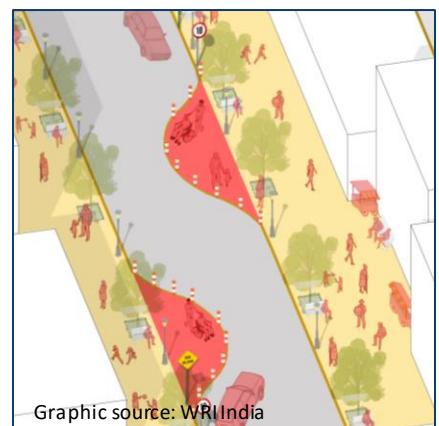
i. Cobble stone paving



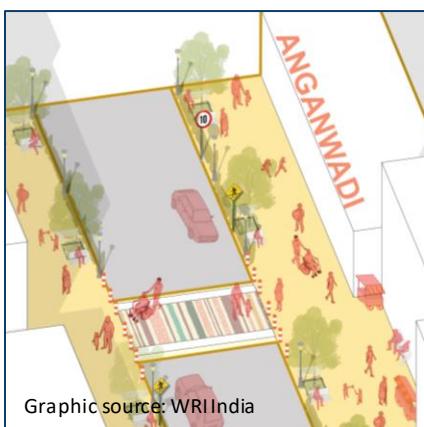
ii. Rumble strip



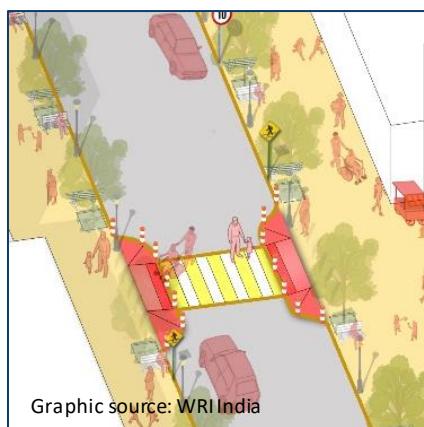
iii. Chicanes



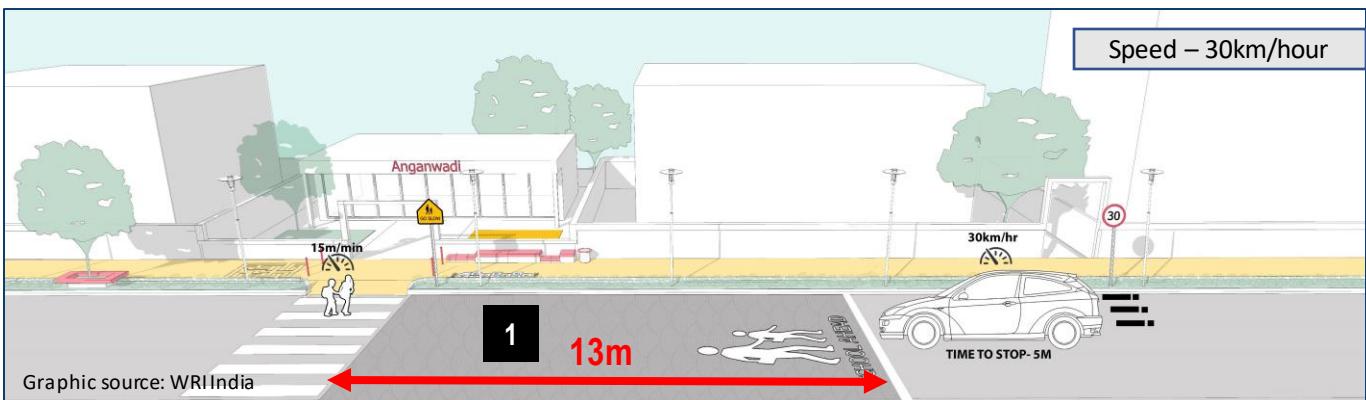
iv. Table-top crossing



v. Bulb-outs



5. STOP Line distance –

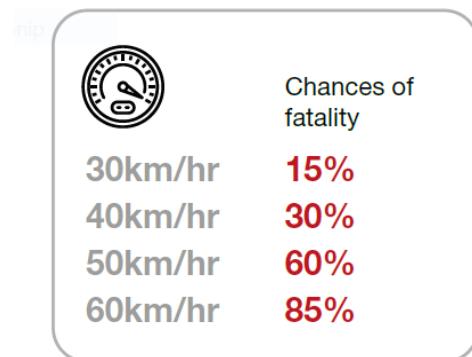


Young children with their caregivers walk at least 3 times slower than average adults

- 1 Increase distance between pedestrian crossing and STOP Line to minimum 13m to ensure drivers can slow down in time with clear view of ITC crossing, to reduce the chances of collision.

- 2 Provide increased distance between pedestrian crossing and STOP line based on the driving speed, to ensure time to react and stop before crossing

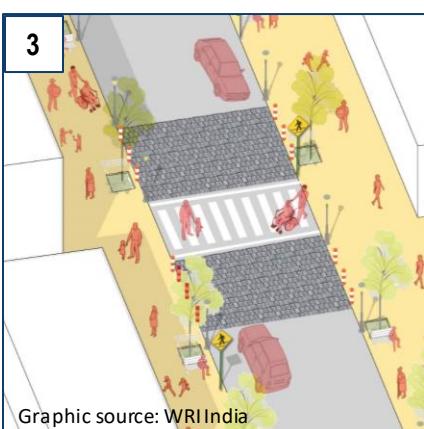
- 3 Ensure additional traffic calming measures such as cobble stone paving or rumble strips between pedestrian crossing and STOP line



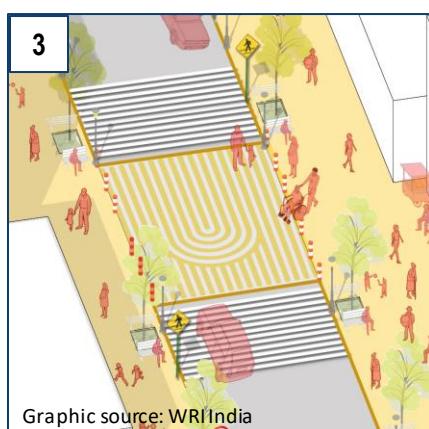
Speed	Stop Line Distance
30Km/Hr	13m
40Km/Hr	18m
50Km/Hr	22m
60Km/Hr	26m

(Most urban streets have designated speed limits based on street typology, local context, traffic volume)

i. Cobble stone paving

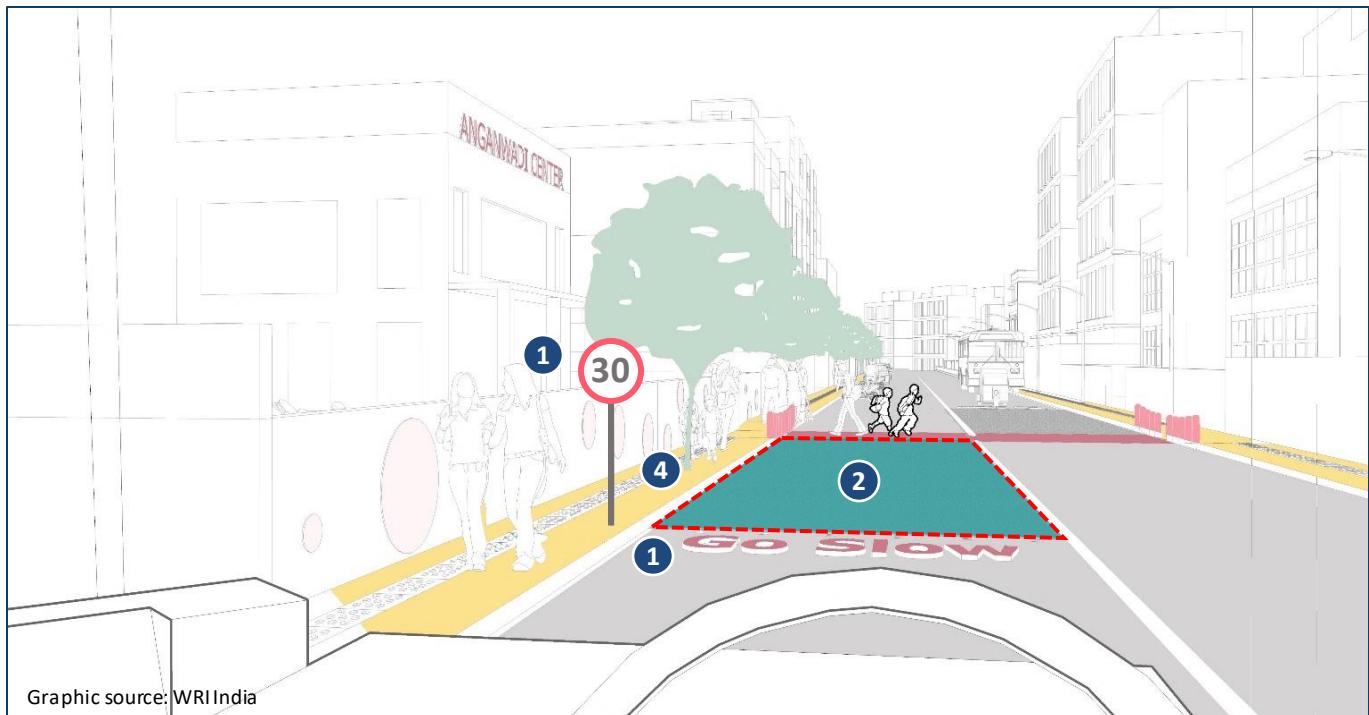


ii. Rumble strip



6. Visibility on streets –

A Visibility for drivers



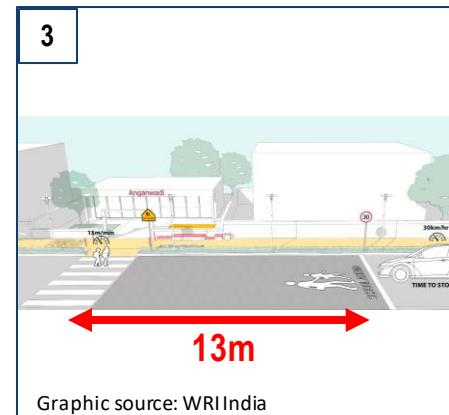
1 Provide legible signage to alert drivers much prior to approaching pedestrian crossing

2 Provide traffic calming 13m before pedestrian crossing to reduce vehicular speed and enhance visibility

3 Ensure min. 13m distance between pedestrian crossing and STOP Line to alert drivers to slow down before approaching pedestrian crossing

4 Ensure no obstructive elements on the footpath such as poles, utility boxes to enhance driver's visibility of ITC @1m height

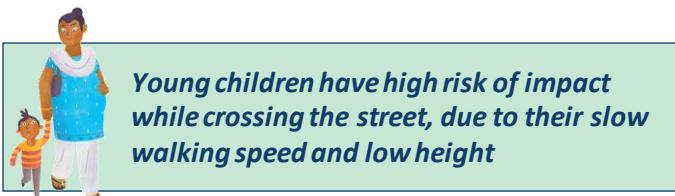
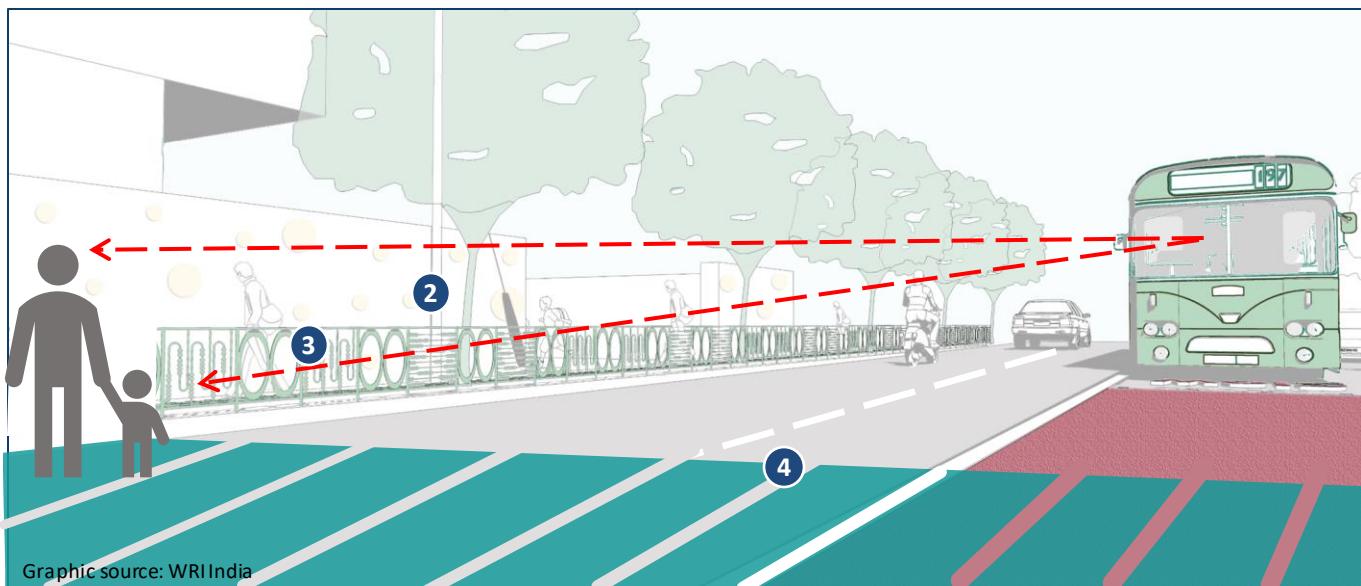
5 Place on-street parking bay, bus stops away from the pedestrian crossing to ensure drivers can see ITCs waiting to cross



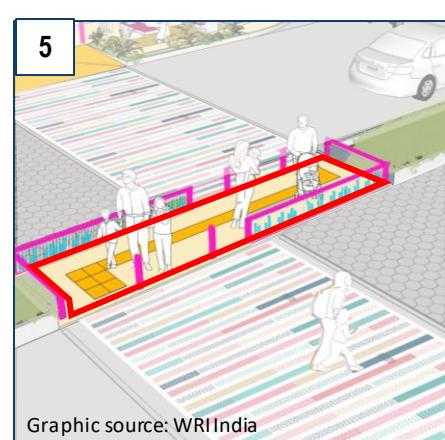
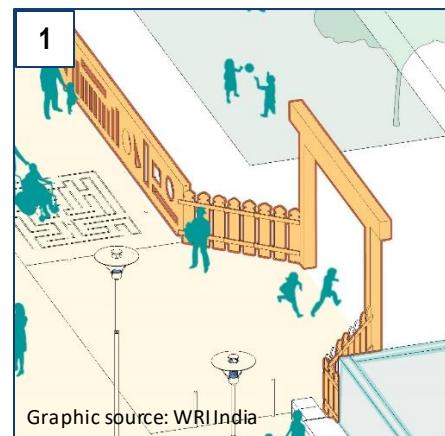
Young children have high risk of impact while crossing the street, due to their slow walking speed and low height

6. Visibility on streets –

B Visibility for Pedestrians



- 1** Provide porous/ see through boundaries of building edges for clear visibility for ITCs
- 2** Ensure no obstructive elements on the footpath such as poles, utility boxes to enhance driver's visibility of ITC @1m height
- 3** Provide interactive railing such as Abacus railing at 95cm as buffer between vehicular and pedestrian movement
- 4** Provide demarcated pedestrian crossing with 13m STOP line distance to provide adequate reaction time with clear visibility
- 5** Provide safe refuge spaces at median break with clear visibility to ensure safety for ITCs while crossing



7. Lighting –



Source: Arunima Saha, WRI India

- 1** Provide **high unadorned lights of 10 lux. level** to shine onto road surfaces, at **20-30m c/c**

- 2** Provide **lower, attractive armatures of 6-8 lux. level** to light footpaths and pavements, at **10-20m c/c**

- 3** Provide **low-level lighting where the paving is uneven**, or where there are steps to illuminate these obstacles better

- 4** Place **lighting elements such that no shadow zones or dark spots should be left** along the footpath

- 5** Place **lighting elements relative to the position of trees and other plants**, to avoid branches obstructing any light

- 6** Avoid **significant changes in lighting levels** along a street



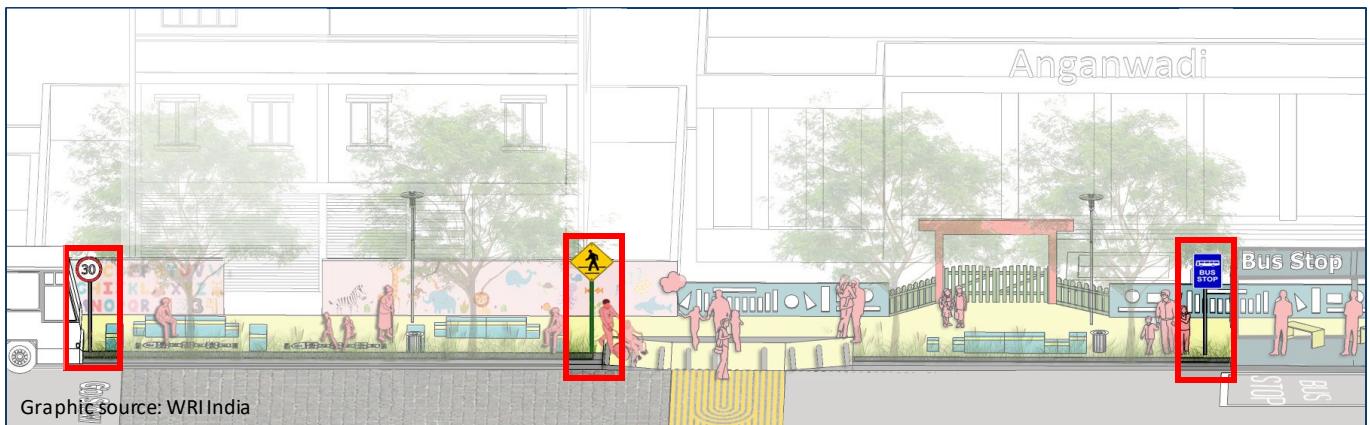
Source:<https://pt.aliexpress.com/item/1005001598045269.html>



Source:<https://www.gmrenlights.com/en/footpaths-lighting/#gref>

8. Signages –

- 1 Provide signages to indicate speed limits, pedestrian crossings, slow vehicular speeds, bus stops, designated parking areas, important landmarks and destinations, in the buffer or MUZ



Develop way finding system for young children to ensure young children recognize where they are and prepare them to step into the public realm without caregivers

- 2 Place the signages so that it is visible at an eye-level of 95cm



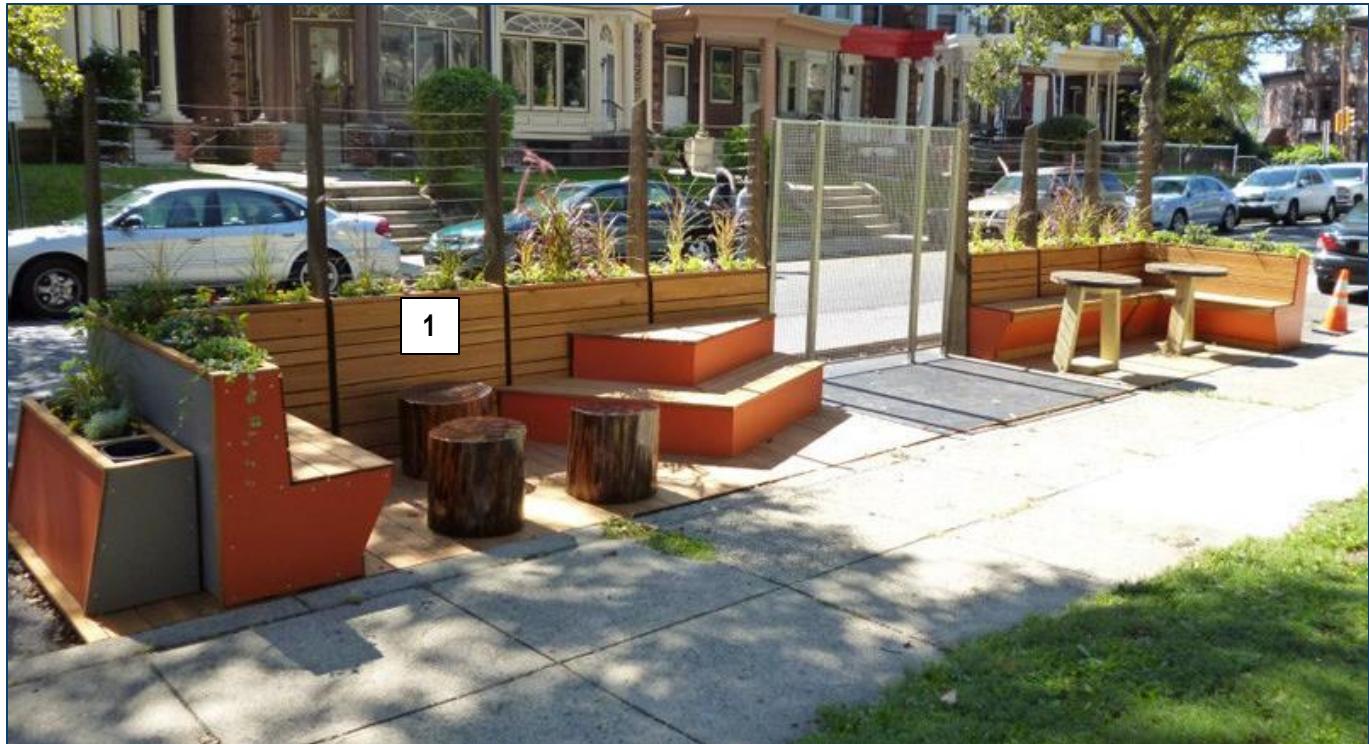
- 3 Use bright and recognizable features such clear symbols for easy readability



- 4 Map and incorporate the informal routes taken by young children in the wayfinding system



9. Seating –



Source: <https://www.contemporist.com/11-parklets-you-wish-your-city-had/>



Young children have low height – the average height of a 3 year old child is 95cm

- 1** Add multi-height seating options along the footpath, as clustered seating (in pause points) to enable both adults and young children to sit comfortably



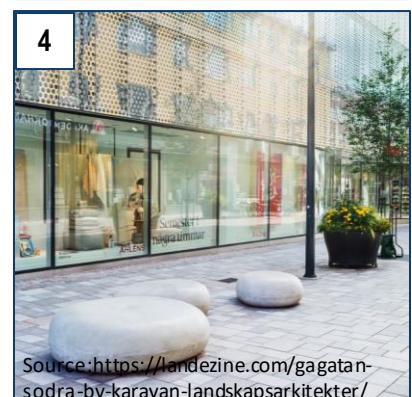
Source: Kshitija Pendharkar, WRI India

- 2** Provide seating for toddlers with height of 270 mm



Source: <https://www.fumitubes.com/street-furniture/seats-benches/>

- 3** Provide a wider flat top for seats 650 mm wide, to ensure safety for babies

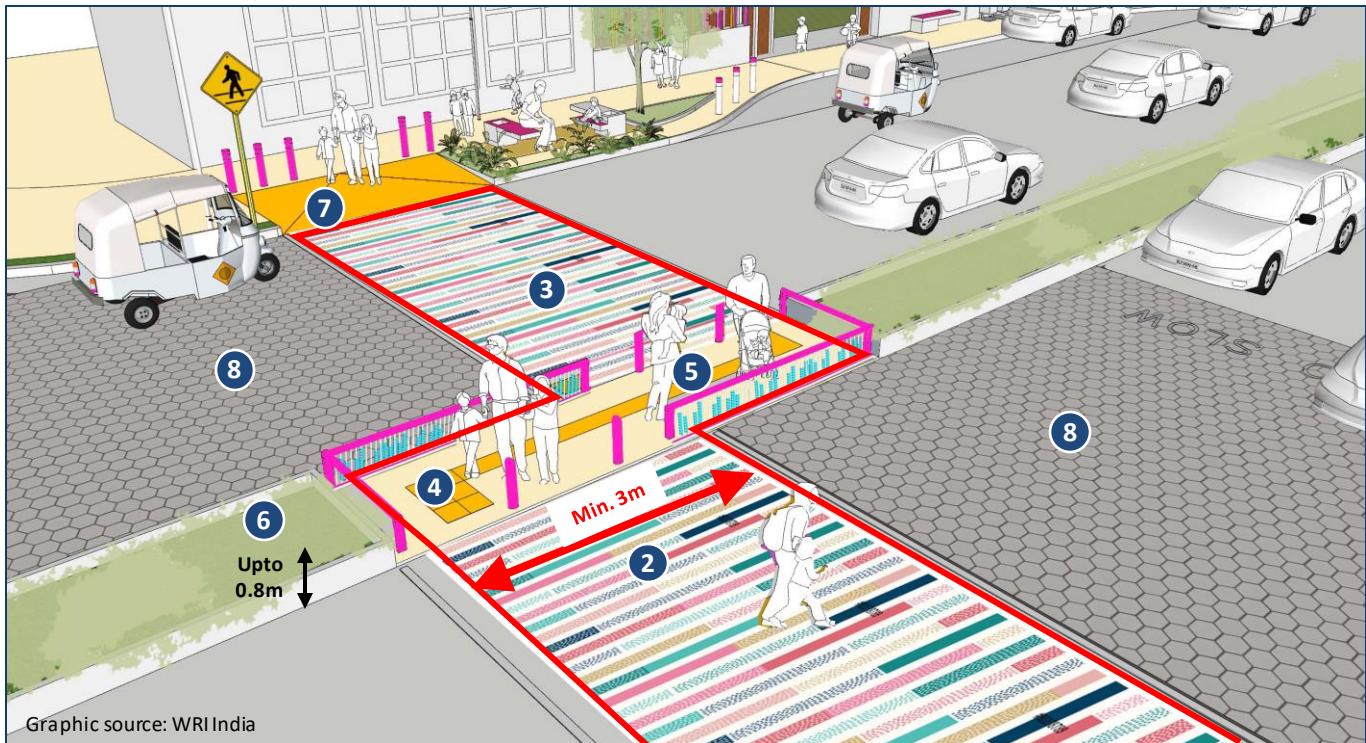


Source: <https://landezine.com/gagatan-sodra-by-karavan-landskapsarkitekter/>

- 4** Integrate seating with other elements such as low-height bollards (400-500mm height) with flat tops, wooden cut logs, etc.

10. Pedestrian crossings –

- 1 Provide mid-block pedestrian crossings at regular intervals (every 250-300m), and near young children and caregiver-oriented destinations



Young children have high risk of impact while crossing the street, due to their slow walking speed and low height

- 2 Ensure min. 3m wide pedestrian crossing highlighted with colourful patterns
(Tabletop or staggered crossing in case of high vehicular speeds)

- 6 Ensure height of plants in the median upto 0.8m for clear visibility of ITCs in waiting

- 3 Provide staggered crossing to increase effective refuge space on median, allowing more ITC to wait and cross safely

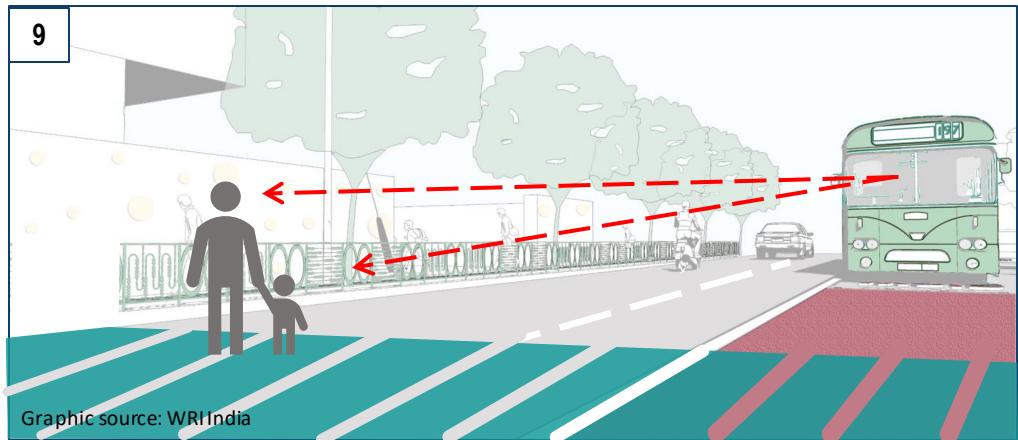
- 7 For at-grade crossing provide ramps (with slope 1:15) on either sides connecting to footpath, with bollards for protection

- 4 Provide wide refuge spaces in the median break at crossing locations to allow ITCs to safely wait and cross the street

- 8 Provide traffic calming (such as cobble stone, paver blocks, or rumble strip) before crossing to slow down vehicles much prior

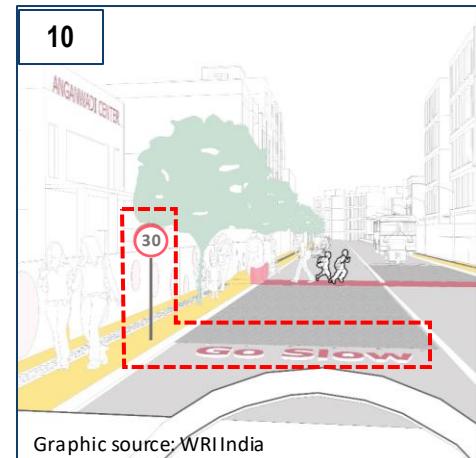
- 5 Ensure refuge spaces in median break to be at the same level as crossing to safely pause while crossing.

10. Pedestrian crossings –



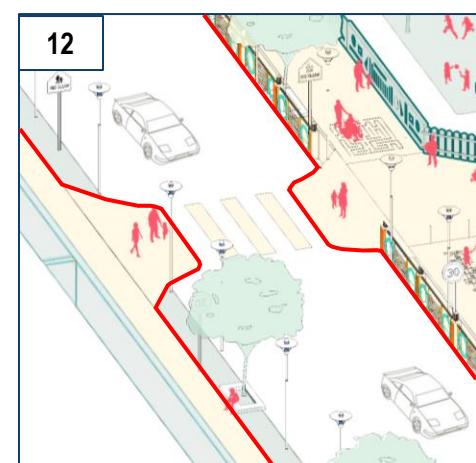
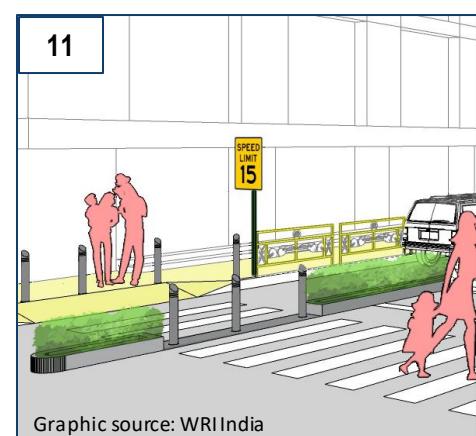
9 Ensure crossing is clear of obstacles that may obstruct ITC's view. No parking or low height planting to be provided next to crossings

10 Provide legible signage before pedestrian crossing to alert approaching vehicles to slow down



11 Provide bollards at the median break to protect pedestrians while crossing and to prevent vehicles taking U-turn

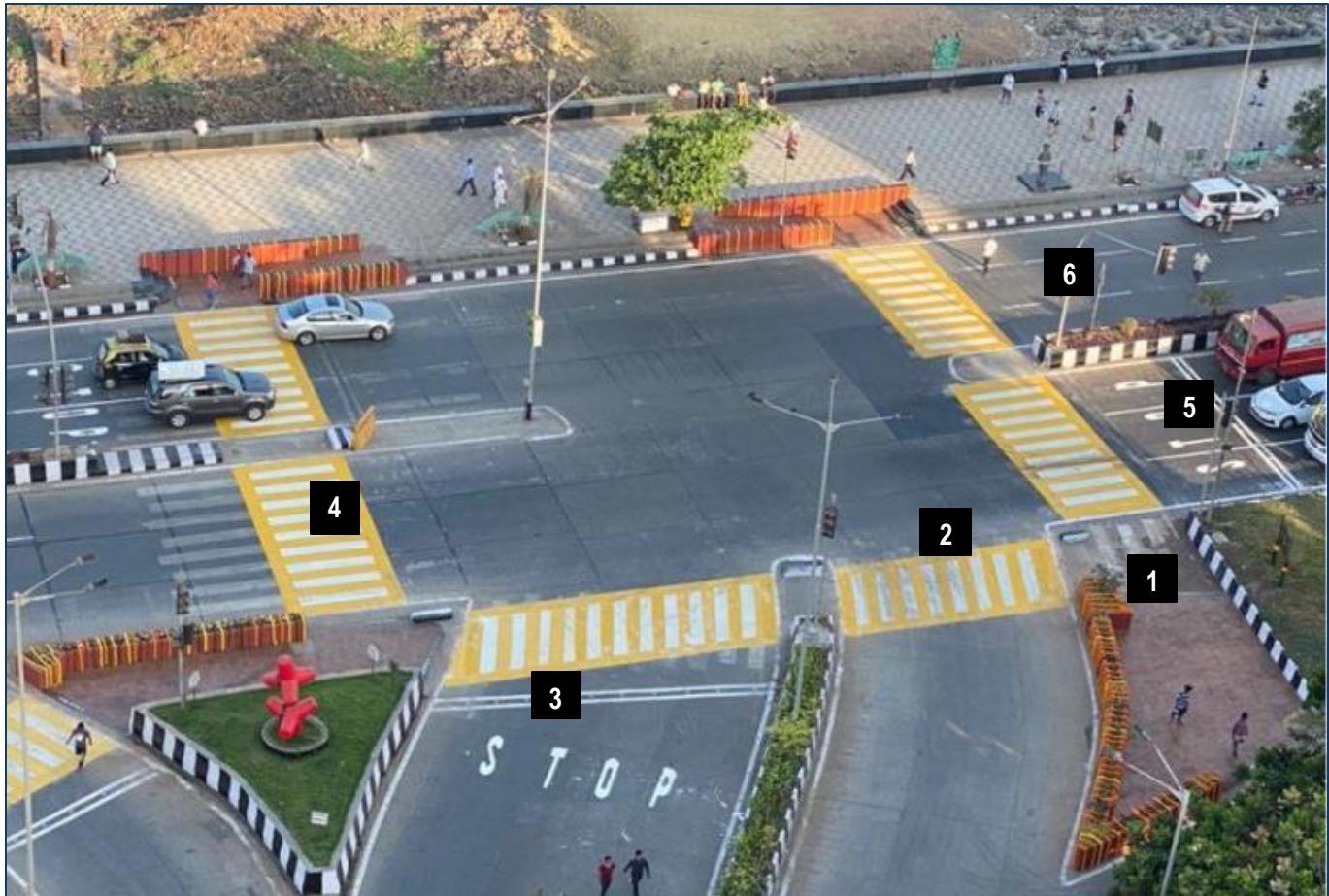
12 Provide kerb extension at mid block crossing to reduce crossing length



11. Junctions and intersections –

Junctions are important nodes connecting multiple streets and hence the pedestrian realm. It is crucial to design and implement **pedestrian-oriented, safe junctions to enable easy pedestrian flow, as well as streamlined vehicular movement.**

Assessment of existing junctions is the first step towards finding the specific issues on ground. Conducting traffic counts and flow, pedestrian counts, parking counts, site surveys and observation surveys are key to highlight issues and potential areas of interventions. Based on these findings, junction improvement should be taken up, which can further be tested on ground through tactical interventions, followed by final implementation.



Source: https://media.licdn.com/dms/image/C5622AQH5QAhtLHnogc/feedshare-shrink_800/0/1651833037202?e=1681948800&v=beta&t=ckrEdvMUQAocJU4SauLvRrqeKavT3V1m_fOjkn2UkZc

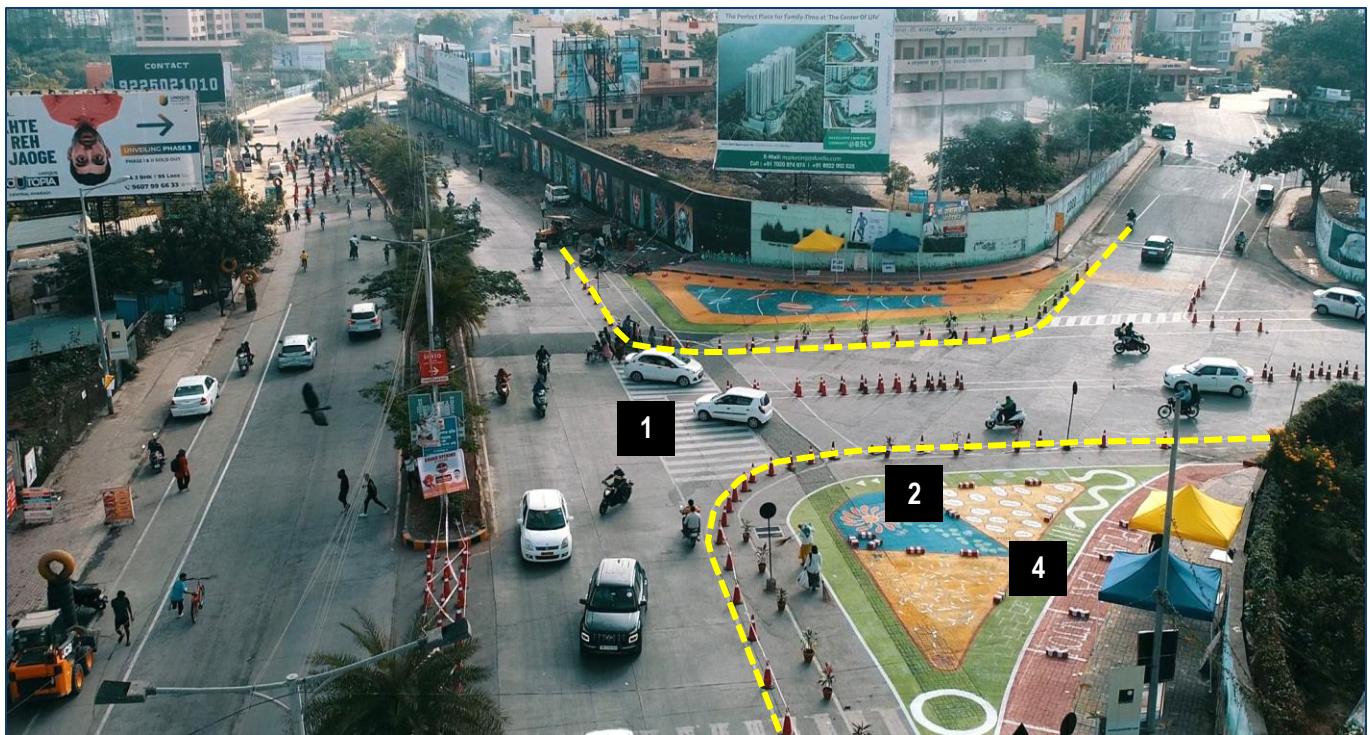


Young children have high risk of impact while crossing the street, due to their slow walking speed and low height

Design principles:

- 1 Absorb undefined areas around the junction into pedestrian refuge spaces**
- 2 Compact junction to ensure shortest crossing distance for pedestrians**
- 3 Reduce speed of vehicles leading to crossing, prevent unpermitted vehicular movement through design**
- 4 Provide clear and adequate pedestrian infrastructure, including crossings, waiting areas, ramps and walkways**
- 5 Ensure visibility for vehicles to be able to see ITCs at crossing and vice versa**
- 6 Orient traffic lanes correctly and maintain lane balance at the junction**

11. Junctions and intersections –



Source: <https://www.linkedin.com/in/abhijit-kondhalkar-a15293186/recent-activity/shares/>

1 Ensure compact junction area for slower turning at junction and maintaining lane discipline

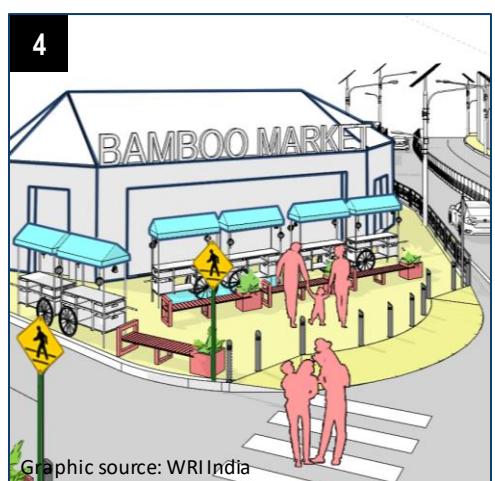
2 Include residual area at turnings into footpath to create sufficient queuing spaces at crossings

3 Provide continuous 1.8m – 2.4m wide clear walking space on footpath to ensure safe walking

4 Use 'Gray spaces' to extend footpath area for safe walking and developing pause points



Graphic source: WRI India



Graphic source: WRI India

11. Junctions and intersections –



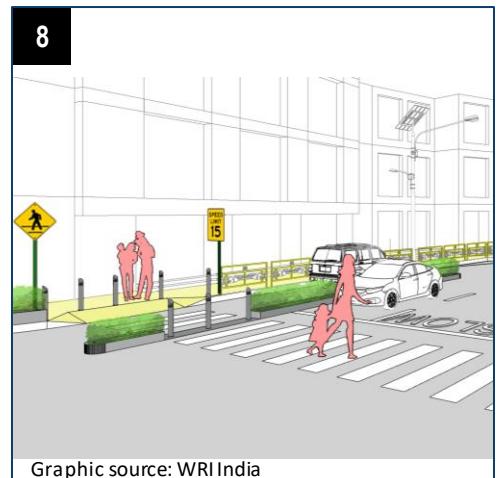
Source: <https://thecityfix.com/blog/redesigning-one-mumbais-dangerous-intersections-3-simple-steps-amit-bhatt-binoy-mascarenhas-dhawal-ashar/>

5 Extend medians to create refuge for at-grade pedestrian crossings, securing with bollards

6 Introduce refuge islands to redirect traffic lanes, compact junctions and cut down crossing distance

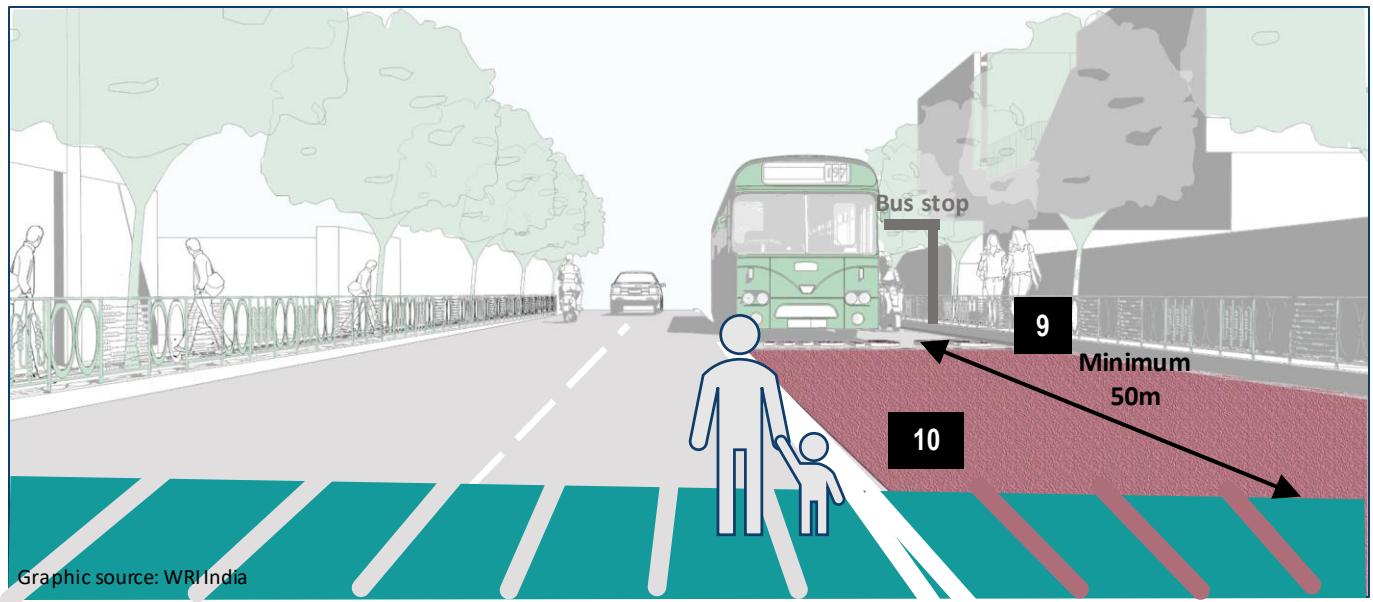
7 Provide ramps (with slope 1:15) to access refuge spaces that can accommodate strollers and wheelchairs in all directions

8 Provide at-grade pedestrian crossings with STOP lines that slow down vehicles and allow visibility of ITC crossing



Graphic source: WRI India

11. Junctions and intersections –

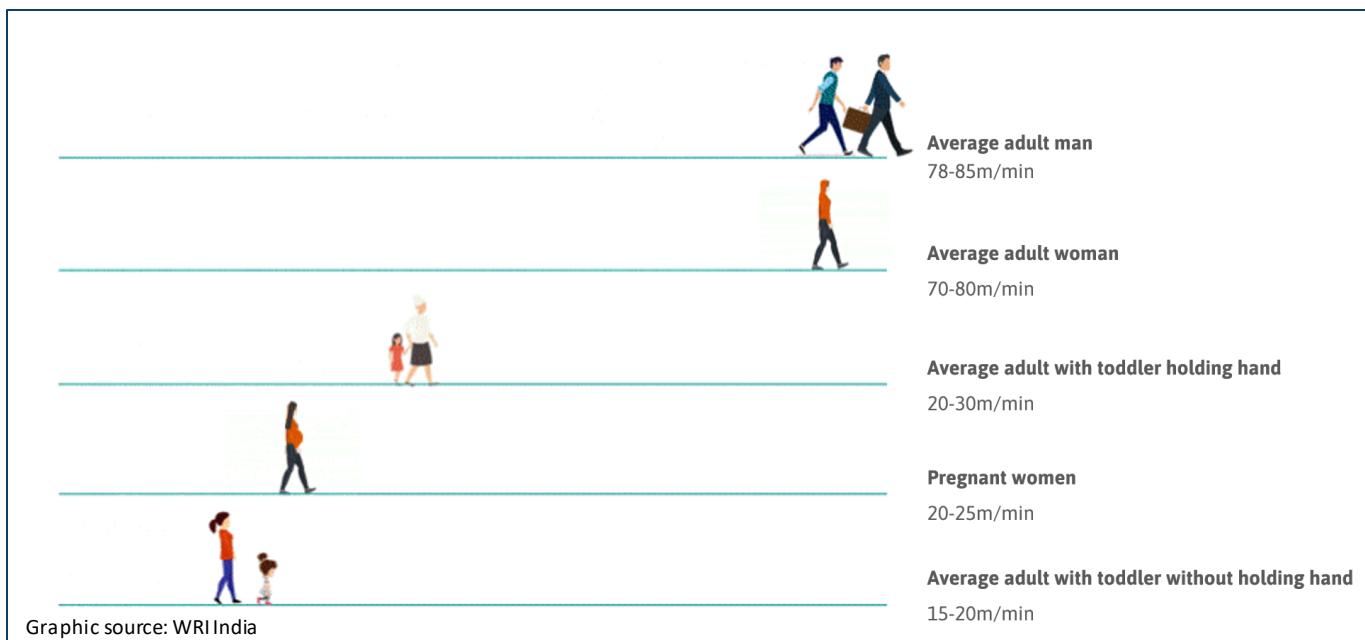


9 Allocate a **dedicated Bus-stop and parking spaces 50m away from the junction** to ease the traffic flow and enable safer crossing at junction

10 Provide **dedicated bus bay without disturbing thorough traffic**

11. Junctions and intersections –

Pedestrian signal timing appropiation:



Young children with their caregivers walk at least 3 times slower than average adults



- 1 As per walking speed of 15-25m/min, for 9m length of crossing, provide 35 seconds for young children and caregivers to safely cross.

In high footfall areas, this time could be doubled to ensure high flow of young children and caregivers crossing safely.

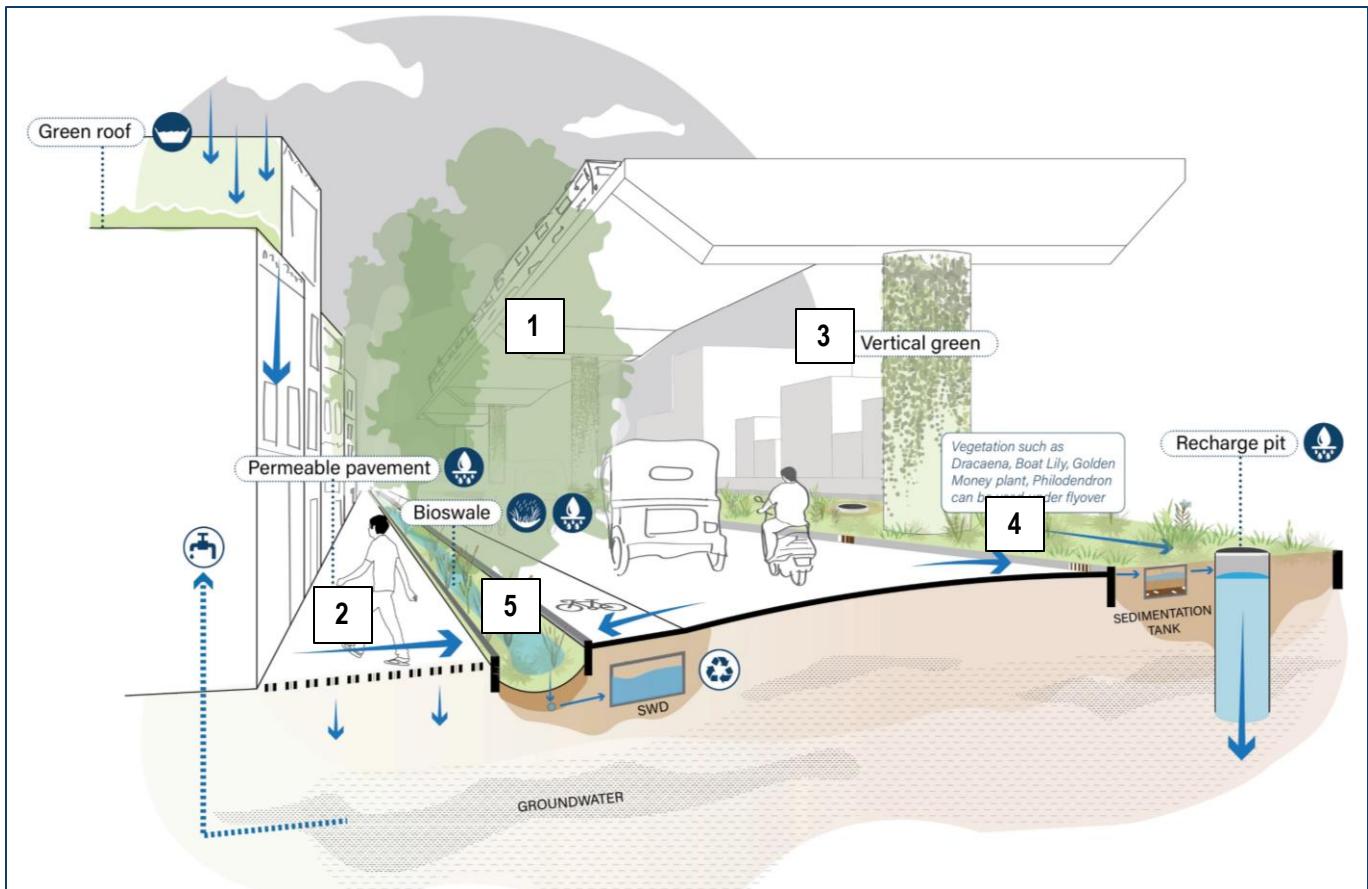
- 2 Ensure all-red signal configuration can allow young children and caregivers to freely cross in all directions of junction.

- 3 Reduce pedestrian waiting time by shortening the overall signal cycle length. This provides higher frequency of pedestrian signals in a given time.

- 4 Provide green signal to pedestrians prior to the traffic going in the same direction so they get a head-start.

- 5 Provide Push-button for on-demand crossing signal. It avoids unnecessary pedestrian signals when not needed.

12. Enhancing climate resilience on streets –



Source : Sindhujia Janakiraman, WRI India

- 1** Provide a **line of trees** for shade along the **footpath, plantation in the median and green buffer** to protect pedestrians from the vehicular carriageway and filter polluted air from vehicle exhaust
- 2** Use **locally-sourced, porous materials** for **footpath, cycle tracks etc.** such as permeable paver blocks

- 3** Provide **vertical greens** along high boundary walls or columns
- 4** Provide **native plants and species** for all plantations along the streets

- 5** Provide **flower-rich bio-swales, tree trenches integrated within green buffer** to improve the microenvironment and provide shade



Source : <https://twitter.com/aanujj/status/122540975784996864>



Source : <https://oasisdesigns.org/pune.asp>

12. Enhancing climate resilience on streets –



Source: <https://nacto.org/publication/urban-street-design-guide/street-design-elements/stormwater-management/bioswales/>

6 Adopt recharge pits in green buffer for percolation and surface-runoff capture

7 Create network of storm water drains along the street

8 Provide shading elements such as trees, canopies, pergolas along the footpath



Source: <https://www.hindustantimes.com/bhopal/pune-s-footpaths-get-a-welcome-make-over/story-9YTc3snNJrvZXsyqOprCXI.html>



Streets and intersections

Audit Checklist (Draft) for streets and intersections
for infants, toddlers and caregivers

Note: This checklist is prepared for stakeholders in NNC Cities to test and provide feedback on the contextualisation of the solution for the city



Assessment tools : Checklist and Indicators

Assessment of existing streets is the first step towards finding the specific issues on ground. Conducting young children-oriented street audit will be the key to highlight issues and potential areas of interventions. This audit shall be carried out by city officials or other urban professionals. It is recommended that young children and caregivers also take part in the audit to provide on-site feedback. It will ensure data-based decision

making and streamline the proposed solutions towards a precise output. A street audit checklist is provided in further section for reference. It is recommended that this audit is carried out by multiple groups of stakeholders to verify accuracy and support data triangulation. This checklist can be modified to include other parameters that are relevant to the chosen area.

First step towards assessment is accurate data collection to understand issues and specific requirements of young children (as per context, location or volume). Beyond the existing data already available, Following are the general methods to collect on-ground data.

This data collection for the streets will require participation from multiple stakeholders i.e. city officials, surveyors, young children, caregivers, local community groups, NGOs etc.

How to collect data related to neighbourhood streets?



Street audit
Official city auditors, young children representatives



Observation surveys
Citizen perception, interviews, volunteer-based observation survey



Site survey
Street furniture inventory, street utilities, trees etc.

Categories for assessment checklist

1. Junctions
2. Mid-block crossing
3. Refuge median and islands
4. Traffic calming elements
5. Footpath area
6. Rest and play spaces
7. Transit zone
8. Cycling infrastructure

Above categories have been made considering areas with high footfall of young children and their caregivers. Certain areas pose higher threat to young children as these areas conflict with vehicular traffic and hence, need to be assessed specifically from their lens.

Other areas around the footpath such as rest spaces and cycling facilities are either missing or poorly designed. These need to be looked at from the perspective of young children as they provide supportive environments for ITCs adding to better perception of streets.

4.1 Young children-oriented street audit checklist

Category	Indicator	Checklist	Response	Benchmark
Traffic calming elements	Average speed of vehicles in the neighbourhood	Are traffic calming elements provided on streets with high footfall of young children and caregivers?	Y/N	Upto 30 Km/hr
		Are kerb extensions such as bulb-outs, chicanes provided to slow down traffic near early childhood facilities	Y/N	
		Is seating cluster provided in kerb extensions as waiting spaces for early childhood facilities	Y/N	
		Is the width of the kerb extension sufficient to accommodate waiting spaces ?	Y/N	
		Is there a green buffer or railing provided for safety at the edge of kerb extension	Y/N	
		Is there space to queue on kerb extensions before crossing	Y/N	
		Are speed bumps provided to slow down traffic	Y/N	
		is there any rough surface provided before crossing to slow down traffic, such as cobblestone, paver blocks or rumble strip	Y/N	
Midblock crossings	% of mid block crossing with safe pedestrian crossing facilities such as ramps, bollards	Is crossing provided at regular intervals of 200-300m on the street?	Y/N	
		Is the crossing highlighted with material/colour change	Y/N	
		Is there demarcated space for queuing on footpath at crossings?	Y/N	
		Is the At-grade crossing provided with ramps on either sides connecting to footpath with ramps (>= 1:15 ratio)	Y/N	
		Is the width of the crossing sufficient for comfortable crossing of young children crossing along with their caregivers	Y/N	3-4M
		Are there any obstructions compromising driver's visibility to crossing	Y/N	
		What is the average crossing length ?	Y/N	TBD
		Is the distance between STOP line and crossing sufficient to protect young children crossing	Y/N	Minimum 0.6m
Midblock crossings	% of mid block crossing having queueing space of 'x' sqm per person on footpath	Is there a kerb extension provided at mid block crossing to reduce crossing length?	Y/N	
		is there any rough surface provided before mid-block crossing to own traffic, such as cobblestone, paver blocks or rumble strip	Y/N	10m in length
		Is there a signage provided at both ends of mid block crossings	Y/N	
		What is the average waiting time for pedestrian crossing at signalized crossings	Y/N	TBD
		Are there bollards provided at both ends of mid-block crossing	Y/N	
		Is typical c/c distance between bollards 0.6m, with any two bollards having 1.2m c/c for stroller/ wheelchair accessibility	Y/N	
		Is height of bollards used on footpath upto 0.6M?	Y/N	

Table 2 Street Audit Checklist (Source : WRI India)

Category	Indicator	Checklist	Response	Benchmark
Junctions	Number of signalized traffic intersections with pedestrian signal phasing	Do the junctions have pedestrian crossing signals?	Y/N	
		Is the pedestrian crossing time sufficient for young children and caregivers?	Y/N	Walking speed of 15-20m/min
		Are there bulb-outs provided at junction to reduce crossing length	Y/N	
		Is the junction highlighted with material/colour change	Y/N	
		Is the junction raised to slow down traffic and facilitate pedestrian crossing	Y/N	
		Is there an audible pedestrian signal?	Y/N	
	Number of junctions having bollards at crossings	Are the zebra crossing at junctions highlighted with material/colour change	Y/N	
		Is the junction protected with bollards along the edge?	Y/N	
	Percentage of traffic intersections with demarcated pedestrian crossing in all directions	Is there continuous pedestrian crossing in all directions of junctions?	Y/N	
		Is parking located minimum 15m away from the junction?	Y/N	
		Is there playful wayfinding signage at a low height for young children?	Y/N	
		Is the turning radius at junction providing clear visibility of young children walking on footpath	Y/N	
		Are the junctions free of visual obstructions (Statues, Electrical junction boxes, transformers, hoardings, Trees, parking, encroachment etc.) so that visibility for drivers is not compromised	Y/N	
		Is there any rough surface provided as warning before reaching junction, such as cobblestone, paver blocks or rumble strip	Y/N	
Refuge medians and islands	Presence of kerb cuts y/n & No of kerb cuts per road km (Supporting)	Is there refuge median or island provided for crossings and junctions around early childhood facilities?	Y/N	
		Are the refuge medians and islands accessible without any enclosure such as railings, high kerb	Y/N	
		Is the width of refuge sufficient for comfortable queuing of young children with caregivers	Y/N	
		Is the refuge space protected by elements such as railing, raised kerb and bollards	Y/N	
		Is the height of bollards used for refuge space provided upto 0.6M?	Y/N	
		Is refuge median accessible at the same level as crossing for easier stroller accessibility?	Y/N	
		Is refuge space providing clear visibility of young children waiting to cross?	Y/N	

Table 3 Street Audit Checklist (Source : WRI India)

Category	Indicator	Checklist	Response	Benchmark
Footpath	% of clear and unobstructed pedestrian footpath of total road length	Is there a footpath on both sides of the carriage way?	Y/N	
		Is width of footpath sufficient to accomodate unobstructed flow of ITCs	Y/N	Min 1.8M clear
		Is width of footpath clear of obstructions (Statues, Electrical junction boxes, transformers, hoardings, Trees, parking, encroachment etc.) for continuous flow of young children accompanied by caregivers	Y/N	Min 1.8M clear
		Does width of footpath accommodate waiting space in high footfall areas such as schools, clinics, anganwadis, etc.	Y/N	2.5-4M
	% of universally accessible pedestrian footpath	Does tactile flooring exist footpaths?	Y/N	
		Do the footpaths have accessible ramps at the crossings, junctions (Making it universal accessible)	Y/N	Ramp ration minimum 1:15
	% of streets with adequate lighting	Does the footpath have street or pedestrian lights at regular interval?	Y/N	Streetlight at 20-30m c/c Pedestrian lights at 10-20m c/c
	% of streets with bollards at property entrance	Are the entry of the properties clearly defined?	Y/N	c/c distance is 0.6m Any two bollards with 1.2m c/c distance for stroller accessibility Y
		Continuous footpath is provided with vehicular ramp in front of the entry to the properties	Y/N	
		Are there bollards before & after Property entrances	Y/N	
		Are bollards present on footpaths at midblock crossings and junctions	Y/N	
		Is c/c distance between bollards 0.6m, with any two bollards having 1.2m c/c for stroller/wheelchair accesssiblity	Y/N	
		Is height of bollards used on footpath upto 0.6M?	Y/N	
		Reflective material on bollards for visibility at night	Y/N	
		Are dusbins available at adequate interval?	Y/N	Every 50-100m

Table 4 Street Audit Checklist (Source : WRI India)

Category	Indicator	Checklist	Response	Benchmark
Footpath	Percentage of street with interactive building frontage	Are compound walls of adjacent property edge more than 2M high?	Y/N	
		Do adjacent properties have non-porous edge like solid compound wall?	Y/N	
		Do building edges have collanades which provide for shaded pathway for pedestrians?	Y/N	
		Are there any green planters on the compound walls?	Y/N	
		Does building edge give oportunities for young children to interact like street art, seating spaces, planters/trees and Jaalis.	Y/N	
		Does the street have street art along the Early childhood facilities/ Amenities Zones?	Y/N	
		Are there any learning elements along the edges- local art, language, culture, history	Y/N	
	Presence of play zone along the walking area on streets	Are there any dedicated play areas on footpath clear of walking zone?	Y/N	
	Presence of natural materials in play equipment or in play space	Are there any natural play elements along the streets (Natural-like mounds)	Y/N	
		Are there any fixed play equipment along the streets like swings.	Y/N	
		Do streets have sensory elements such as flowering plants (fragrance), touch sensitive elements, music-based play equipment.	Y/N	
		Are there noise buffers installed on streets near early childhood facilities in the form of noise berms, thick shrubs and sound absorbing materials?	Y/N	
	% of footpath provided with anti-skid material such as rubber tiles and paver	Is there anti-skid material provided for footpath for ensuring children's safety	Y/N	
		Are different materials used for demarcating different zones on footpath such as play zones, utilities zones, walking area, cycle track, shared spaces.	Y/N	
		Are materials used in the play zone low-impact and soft such as bark, sand, rubber tiles, pavers?	Y/N	
		Are Non-Toxic paints used for painting the surfaces	Y/N	
	Presence of non permitted activities on streets	Are there any encroachments on the footpath (on street Vending, parking, shop spill over, junction boxes, hoardings, transformers, etc)	Y/N	
		Is vending obstructing clear walking and waiting spaces?	Y/N	
		Are electrical junction boxes secured with barrier around so that it is safer for young children and caregivers while walking	Y/N	
		Is there any encroachment on the footpath with parking	Y/N	

Table 5 Street Audit Checklist (Source : WRI India)

Category	Indicator	Checklist	Response	Benchmark
Footpath	Percentage of the street edges protected / guarded	Is there a buffer such as railing or short wall or vegetation between footpath and carriage way on the street?	Y/N	
		Does height of railing along footpath affects visibility of young children?	Y/N	Upto 0.6M
		Is height of plantation in green buffer such that it doesn't hamper visibility of young children?	Y/N	Upto 0.6M
		Does the street have any bio swales	Y/N	
		Is plantation on bioswales at a height which does not hamper visibility of young children?	Y/N	Upto 0.6M
		Are there open drains along the streets?	Y/N	
		Is storm water catchment inlet provided at regular intervals to catch surface runoffs?	Y/N	20-25m
	Does the street have any flooding areas during the rains	Y/N		
Rest and play spaces	Presence of signages denoting nearby early childhood facilities	Are there any special signages for young children, denoting their presence near Early childhood facilities/ Amenities	Y/N	
		Are the signages placed at height visible to young children?	Y/N	
		Are signages painted on footpath for better visibility of young children and caregivers?	Y/N	
		Are the signages visible without any obstructions	Y/N	
		Are there signages for differently abled ?(Digital with sign language, braille, sound)	Y/N	
		Are there any designated parking zones along the footpath	Y/N	
		Is seating available at regular interval of 100-150 M?	Y/N	
	Provision and quantity of public seating to stop and rest by, along the street	Is seating available at various height ranging from 0.15-0.45M for young children and caregivers	Y/N	
		Is width of seating sufficient for young children and caregivers?	Y/N	0.45-0.6
		Is the seating playful? play opportunities near seating	Y/N	
		Are there any special signages for young children, near Early childhood facilities/ Amenities	Y/N	
		Are there any learning elements along the edges- local art, language, culture, history	Y/N	
Rest and play spaces	Presence of low- impact/soft materials such as Ex: bark softfall, impact absorbing sand, Wet pour rubber, rubber tiles and pavers etc.	Is seating provided as cluster near early childhood facilities?	Y/N	
		Is lighting provided near seating	Y/N	
		Is the seating space shaded?	Y/N	
		Are there green spaces/ vegetation near seating?	Y/N	
		Does seating obstruct the pedestrian flow?	Y/N	
		Are there designated vending zones around pause points?	Y/N	
		Are dustbins available near pause points	Y/N	within 20m
		Are there drinking water facilities near pause points?	Y/N	within 20m

Table 6 Street Audit Checklist (Source : WRI India)

Category	Indicator	Checklist	Response	Benchmark
Transit zone	% of early childhood facilities having public transit stop within 5-10 min walking distance	Is transit stop obstructing pedestrian flow?	Y/N	
		Is there a pedestrian crossing before transit stop?	Y/N	
		Does transit stop have crossing facilities connecting all 4 directions?	Y/N	
		Is there legible and unobstructed signage near the transit stop?	Y/N	
		Are there signages at transit stops with route maps to all destinations in all directions	Y/N	
		Is there a sufficient demarcated queuing space near transit stops?	Y/N	
	Number of transit stops with adjoining play and learn opportunities	Is there sufficient seating/rest spaces near transit stops which are shaded and well-lit?	Y/N	
		Are there opportunities for play at transit stops?	Y/N	
Cycling infrastructure	% of streets with cycling tracks	Are there public toilets and nursing facilities available in proximity to transit stops?	Y/N	
		Are there drinking water facilities near transit stops?	Y/N	
		Are there wayfinding signage provided for the convenience of caregivers with young children?	Y/N	
		Is the bus stop located minimum 30-50M away from the nearest junction?	Y/N	
		Are there cycle tracks provided on footpaths?	Y/N	
	Presence of signages for cycle tracks	Is there dedicated cycle parking provided along the footpath?	Y/N	
		Are there any PBS stands with rental facilities for strollers, tricycles, wheeled vehicles(wagons,cycles with training wheels) at every 200-400M	Y/N	

Table 7 Street Audit Checklist (Source : WRI India)

