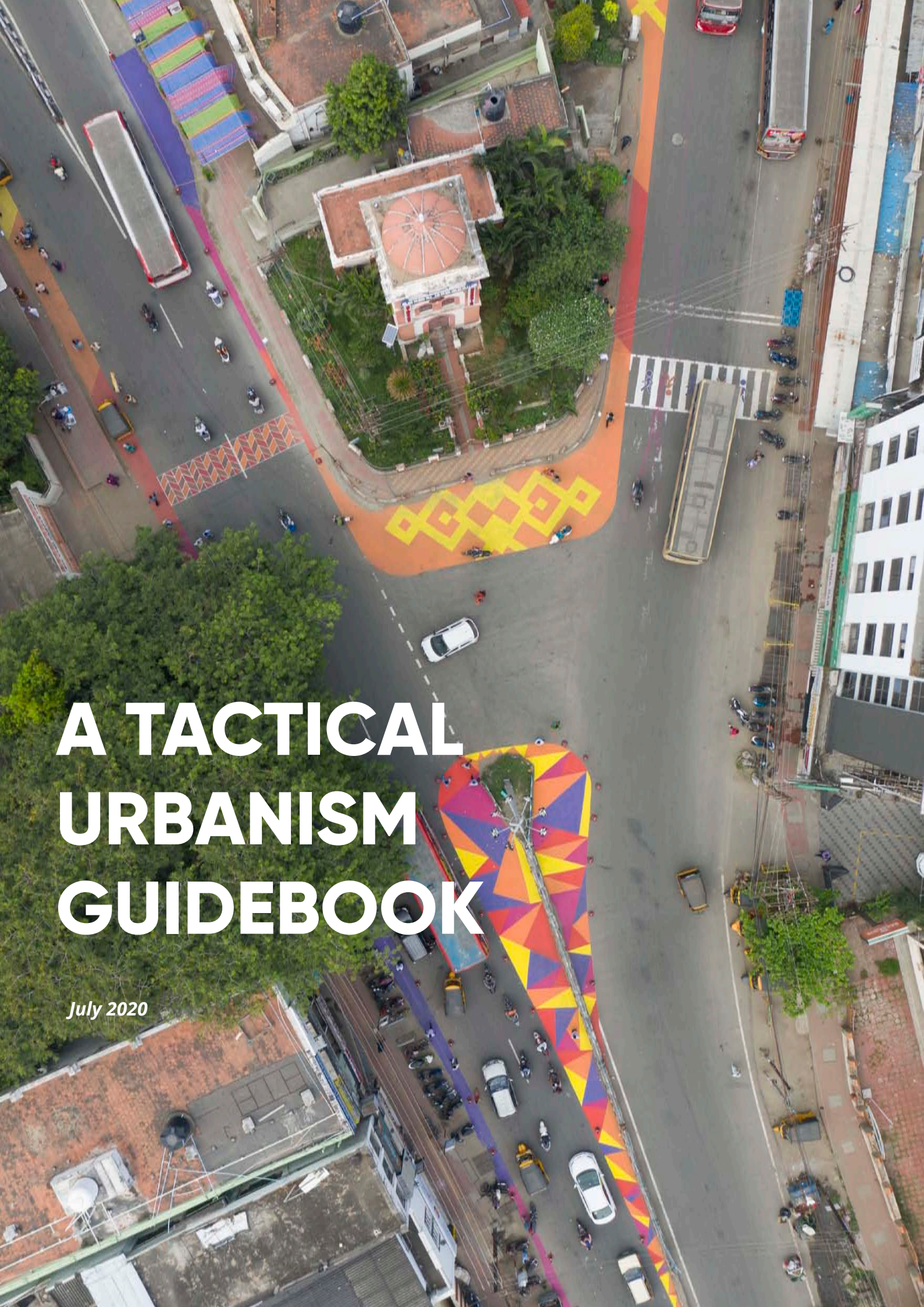

A TACTICAL URBANISM GUIDEBOOK

July 2020

Implemented by

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Image credits: Urban Design Collective (unless mentioned otherwise)

Foreword

Chapter 1
INTRODUCTION

Chapter 2
PEOPLE AND PROCESSES

Chapter 3
THEMATIC INTERVENTIONS

Annexures
- Mapping templates
- Sample street sections showing proposed tactical urbanism interventions
- Sample cost estimate for tactical urbanism
- Tactical Urbanism in India - Case examples fact sheets
- Glossary of terms

FOREWORD

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INTRODUCTION

WHY THIS GUIDEBOOK?

The COVID-19 pandemic has radically altered daily life as we knew it from a few months ago. In a time when it is required to maintain physical distance to protect public health and group gatherings are prohibited, our streets and public spaces need to raise their level of performance. This is particularly true in Indian cities with high densities of people on urban streets. With restrictions on travel, eating out & commercial activities and some workplaces opting to continue the work from home situation, the moment is now to reallocate street right-of-ways (ROWs) with more priority for walking and cycling.

Reimagining our street sections will help people regain the confidence to safely move around and get back to a level of normalcy. More than anything, it is an opportunity to not return to unsustainable ways and set the foundation for a future that is inclusive, equitable and livable.

The first step towards redistributing our street ROWs is to engage in a trial run of what this new street section could look like through a tactical urbanism approach which is low-cost and easy to install. This allows an opportunity for all the stakeholders - the city and its residents - to get accustomed to the new street ROW configuration before it can transition into a permanent intervention that is endorsed by everyone for its efficiency and livability.

The purpose of this guidebook is therefore to decode the various aspects of ***Tactical Urbanism*** – an emerging city-shaping approach in Indian cities. This guidebook has been calibrated to adapt to a vast range of local contexts and is relevant to citizens, experts and urban local bodies alike. It draws on learnings from several case studies from Indian cities over the past five years to explore five thematic intervention areas to effect change in our streets and public spaces.

WHAT IS TACTICAL URBANISM?

'Tactical urbanism shows how with a little imagination and the resources at hand, cities can unlock the full potential of their streets.'

-Janette Sadik-Khan

Tactical urbanism is a city and/or citizen-led, quick and affordable way to test and demonstrate change in our physical environments. It is an approach that is premised on using short-term, low-cost and scalable interventions as a way to catalyse long-term change.

WHEN TO USE A TACTICAL URBANISM APPROACH? WHAT ARE ITS BENEFITS AND LIMITATIONS?

Tactical urbanism has applications across several intervention areas such as pedestrian and bicycle mobility, resolving conflicts between mobility and livability, improved transit experience, placemaking and wayfinding.

Tactical urbanism as an approach has several benefits including but not limited to the following:

1. It helps deepen understanding of user's needs at the site for intervention through a rapid assessment of the existing challenges, opportunities and constraints.
2. It serves as a proof of concept for a plan before committing large financial investments to a project. Conversely, it also helps expedite project implementation knowing that there is a buy-in from all stakeholders involved if the tactical urbanism project has received positive feedback post-implementation.
3. It helps to quickly address problems related to user experience in our streets through cost-effective interventions.
4. It encourages residents, non-profits, local businesses, and government agencies to work together while using the system creatively. This helps widen public engagement by providing an opportunity for more effective conversations with citizens.

There are however limitations and the following are examples of problems that tactical urbanism projects cannot address:

- Poor road conditions such as water logging, uneven street levels and broken/ unfinished roads
- Lack of utilities such as sewage lines/ storm water lines or other such street infrastructure
- Parking shortage
- Crime on the streets

A tactical urbanism project is therefore a catalyst for change which eventually needs to be made permanent and each tactical urbanism project must be a contextual creative response to specific issues on a street in a neighbourhood in order to be successful. Cities must acknowledge the need for permanent intervention in order to improve livability in their public realms in the longer term.

HOW TO USE THIS DOCUMENT?

This document is organised broadly under two sections:

- *People and Processes*
- *Thematic Interventions*

The section on ***People and Processes*** lays emphasis on the preparatory planning required for undertaking a tactical urbanism project. It lists out the steps involved starting from how to select a site for intervention to how to study the site context and all the way upto post-implementation engagement with the public. It also talks about the various players who must be involved at all these stages including their roles and responsibilities.

This section is particularly useful for city officials and engineers to understand what is involved in the planning and execution of a tactical urbanism project.

The section on ***Thematic Interventions*** presents the applications of tactical urbanism across five broad themes with possible design elements while also detailing out how to study the site to arrive at an appropriate design response. It also presents a possible material palette for design elements under each thematic intervention.

This section is laid out for the design team either from the city's ULBs or an external consultant as a methodology to be followed through the process of planning/ designing a tactical urbanism project.

Lastly, the annexures provide checklists/ templates to support the planning and execution of a tactical urbanism project as well as sample street sections showing proposed tactical urbanism interventions. Also included is a sample costing and some fact sheets of tactical urbanism best practices from India for reference.


2

PEOPLE AND PROCESSES

THE WHO AND HOW OF A TACTICAL URBANISM PROJECT

A tactical urbanism project, though primarily a tool to effect change in our physical environments, also encourages residents, non-profits, local businesses, and government agencies to work together to bring about this change. It is by nature a participatory planning tool and therefore it becomes imperative to present all the people involved and the work flow processes as inseparable to each other.

The overall work flow for a tactical urbanism project is structured under 4 key stages:

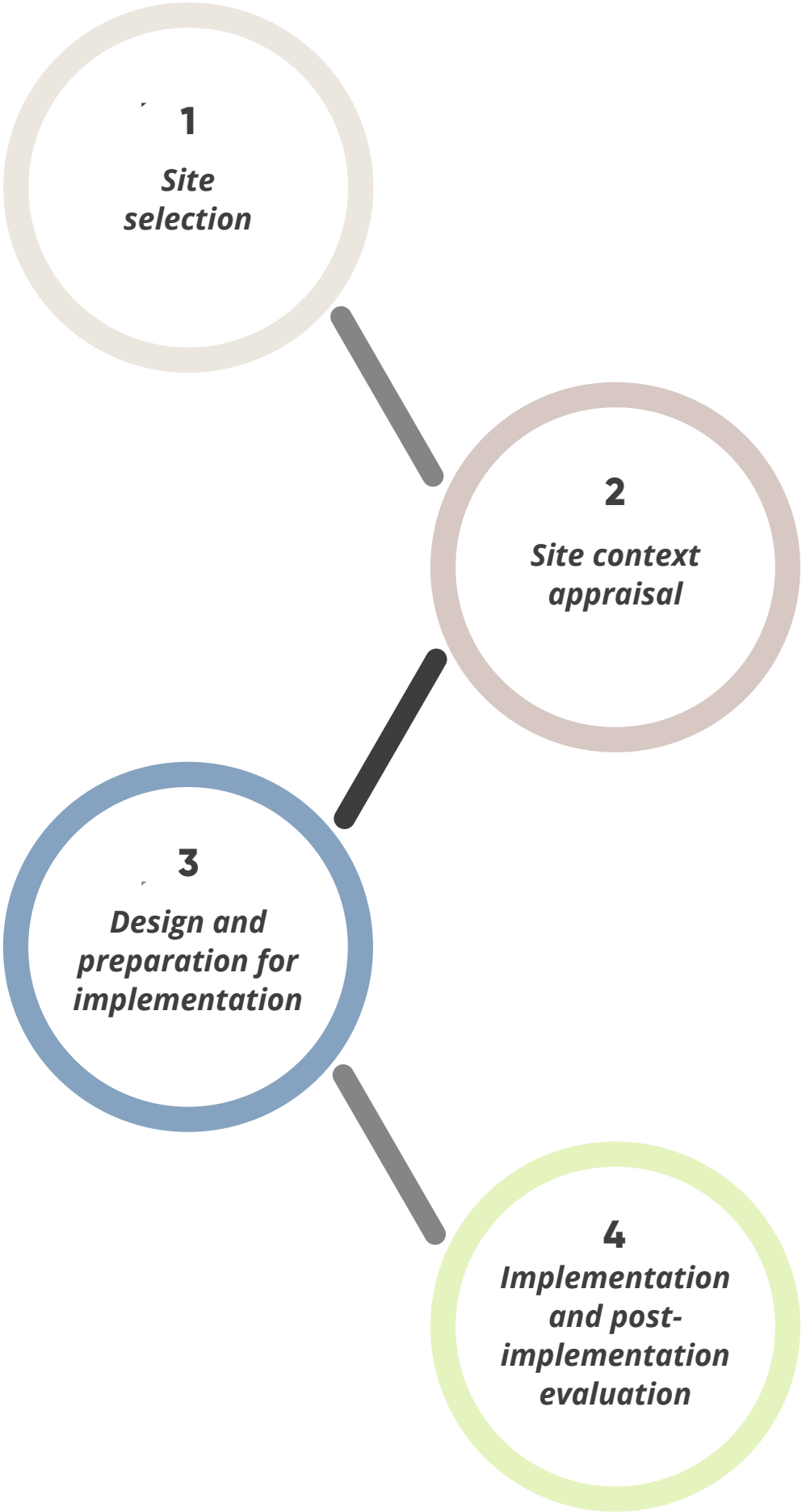
1. ***Site selection*** – Selecting a stretch to plan and execute a tactical urbanism project
2. ***Site context appraisal*** - Understanding the site, its context, opportunities and constraints
3. ***Design and preparation for implementation*** – Detailing out the designs based on site context appraisal including estimating costs for the implementation and preparing for on-ground execution
4. ***Implementation and post-implementation evaluation*** – Executing the designs on site and measuring the results

Each of these stages requires several players to take up specific roles and responsibilities but broadly there are five roles to be fulfilled in a tactical urbanism project-

- ***Initiation & championing***
- ***Design & construction***
- ***Coordination & logistics***
- ***Communications & documentation***
- ***Funding agency/ fundraising***

Each of these roles will need to be performed by individuals/ teams in close coordination with each other throughout the cycle of the tactical urbanism project to ensure a successful endeavour.

4 KEY STAGES OF A TACTICAL URBANISM PROJECT



5 KEY ROLES REQUIRED FOR A TACTICAL URBANISM PROJECT

This diagram lists possible individuals/ teams who could fulfill the 5 key roles in a tactical urbanism project. This list is however only a sample and not exhaustive.

Initiation & Championing

ULB
Traffic police
Motor Vehicles Department
Smart City SPV

Coordination & Logistics

Government officials
External agency
NGOs
Community groups

Design & Construction

Design team/ Consultant
Contractor
Site survey agency
Design students
Volunteer groups

Communications & Documentation

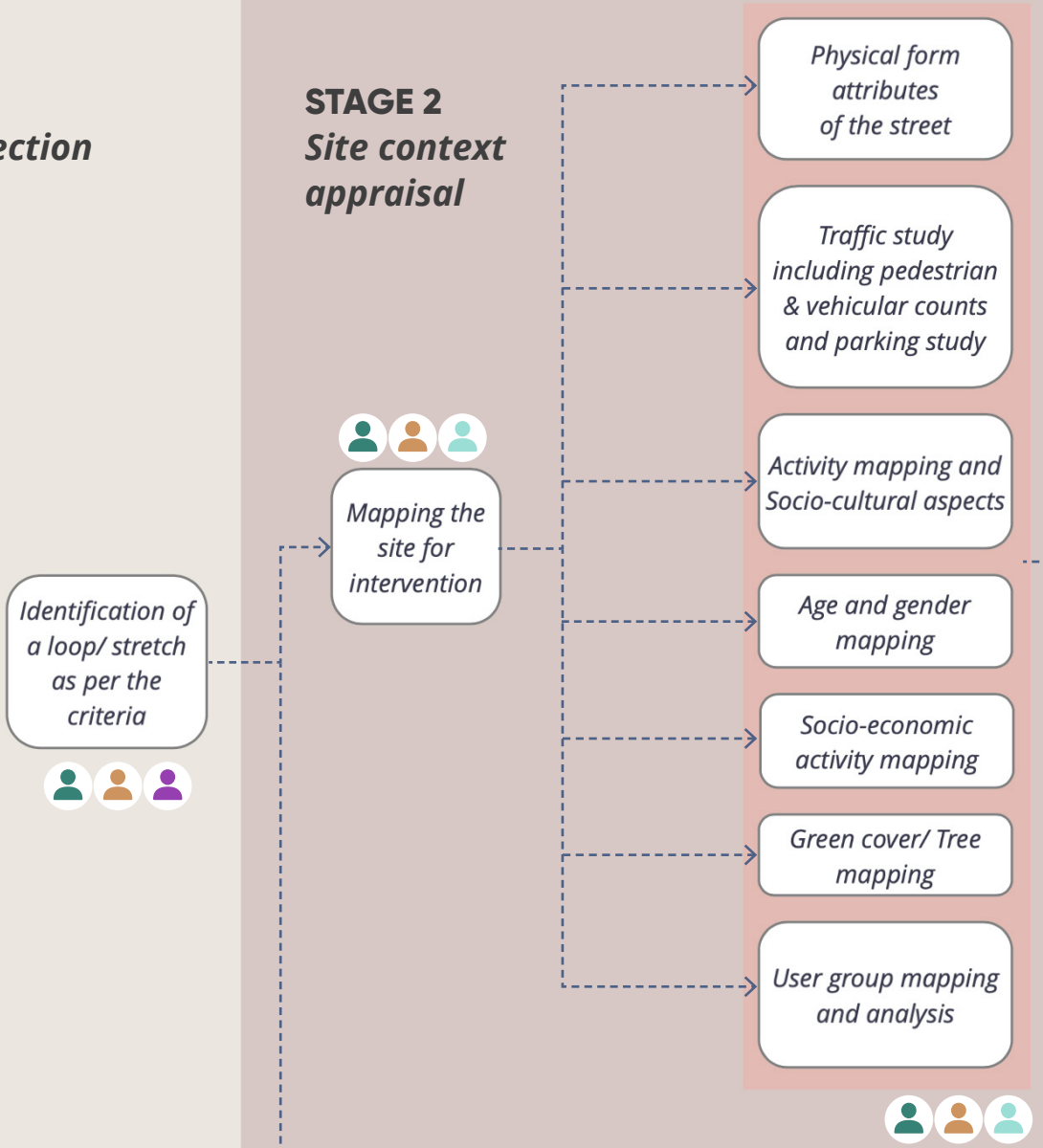
Media persons
Photographers/ Videographers
Communications students
Volunteer groups

Fundraising

Government officials
External agency
NGOs
Community groups

STAGE 1
Site selection

STAGE 2
Site context appraisal



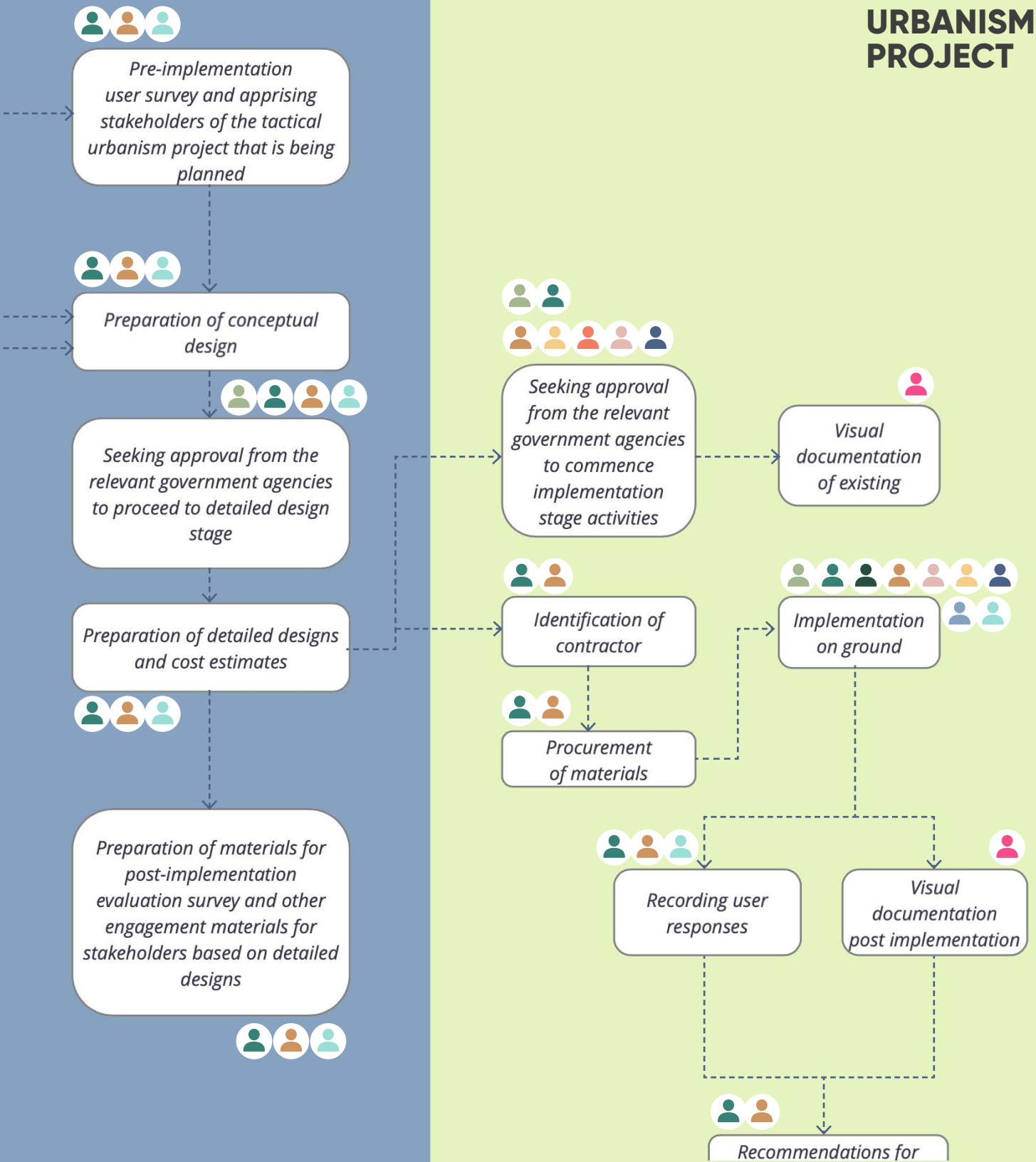
- *Bureaucrats*
- *Engineers*
- *Municipal workers/ On-ground staff*
- *Traffic Police*
- *Police (Law & Order)*
- *Electricity Board*
- *BSNL*
- *Designers/ Consultants*
- *Contractor*
- *Survey Agency*
- *Visual documentation team*
- *Volunteers (citizens, RWAs, students)*

** It is not compulsory to undertake a total station survey for a tactical urbanism project. The survey however is useful for detailing certain design elements that may be customized to the site's physical attributes.*

OVERALL WORK FLOW FOR A TACTICAL URBANISM PROJECT

STAGE 3
Design and preparation for implementation

STAGE 4
Implementation and post-implementation evaluation

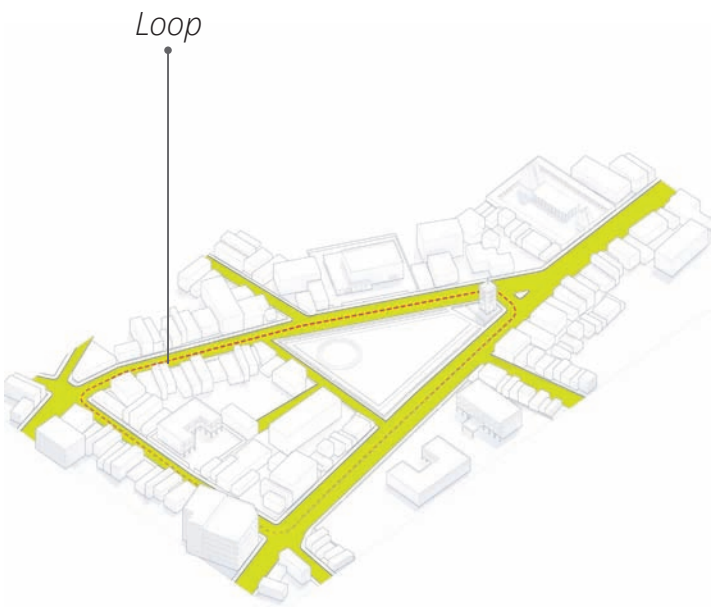


STAGE 1 - SITE SELECTION

This first step which is also a critical aspect to ensure the success of a tactical urbanism exercise in a city is the selection of the stretch itself. Because the goal is to ensure that many kilometres of streets can be reimagined, the first stretch which serves as a demonstration project should tick as many boxes on the list here to ensure scalability and replicability across the city-

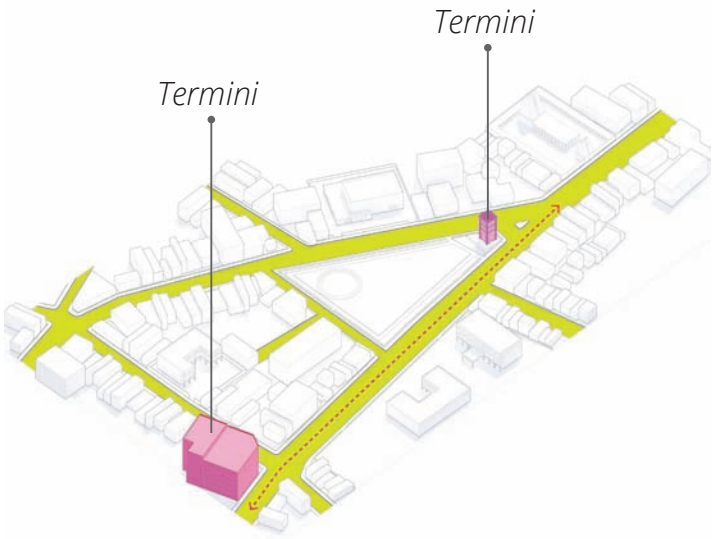
1 *Loops are good!*

The stretch should preferably be a loop that connects several magnets that draw pedestrian and vehicular traffic to show a network level demonstration. This will enhance functionality of the street for multiple stakeholders.

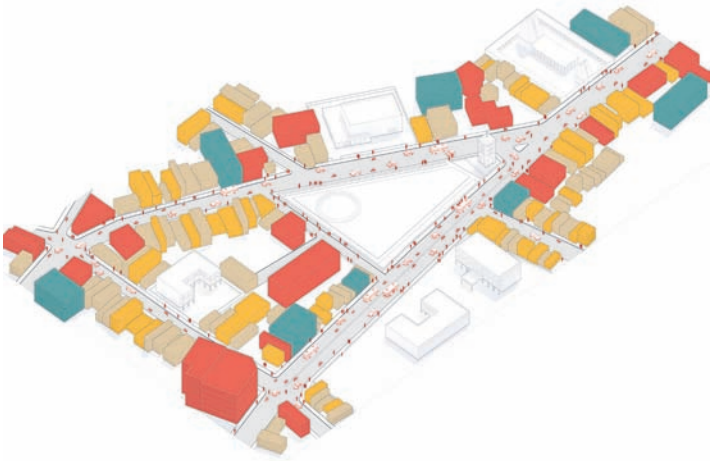


2 *Connect places that people visit*

If a loop is not possible, the start and end points of the stretch should be termini points wherein the street functions as a conduit between the two.



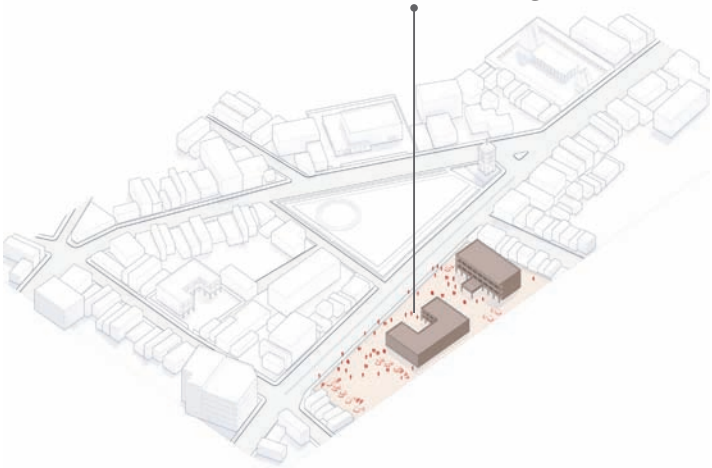
Mixed-use street/ block



3 *Mixed use streets are the best*

The stretch should be mixed use - preferably a mix of retail, markets, offices, cultural, recreational and institutional uses- and have more than one primary user group. For example, IT corridors typically have a homogeneous land use and hence limited user groups and stakeholders. Adding street vending to the mix may be desirable to demonstrate how they can be accommodated in the design.

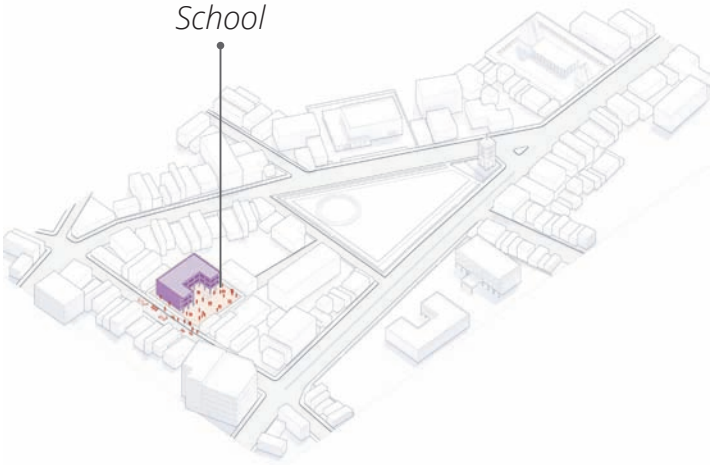
Public building



4 *Look for public buildings*

It would be ideal if a public/ government building is located on the stretch as it ensures visibility to the city officials who will be frequenting the stretch; thereby allowing them to see the changes real time.

School

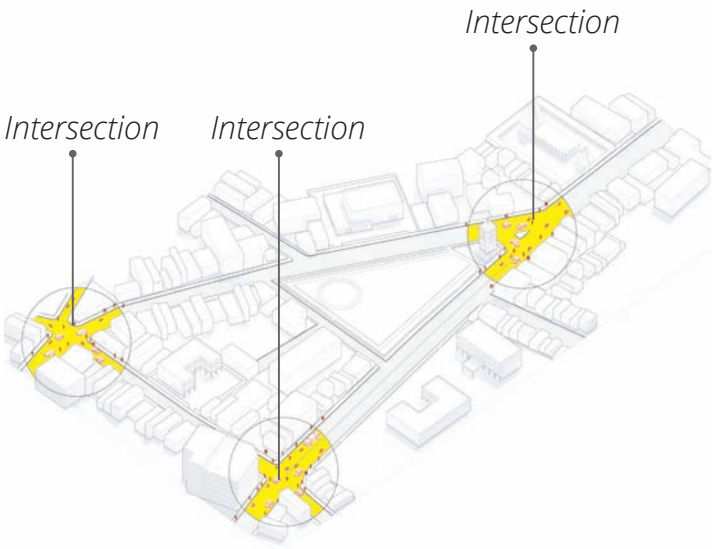


5 *Bring children into the equation*

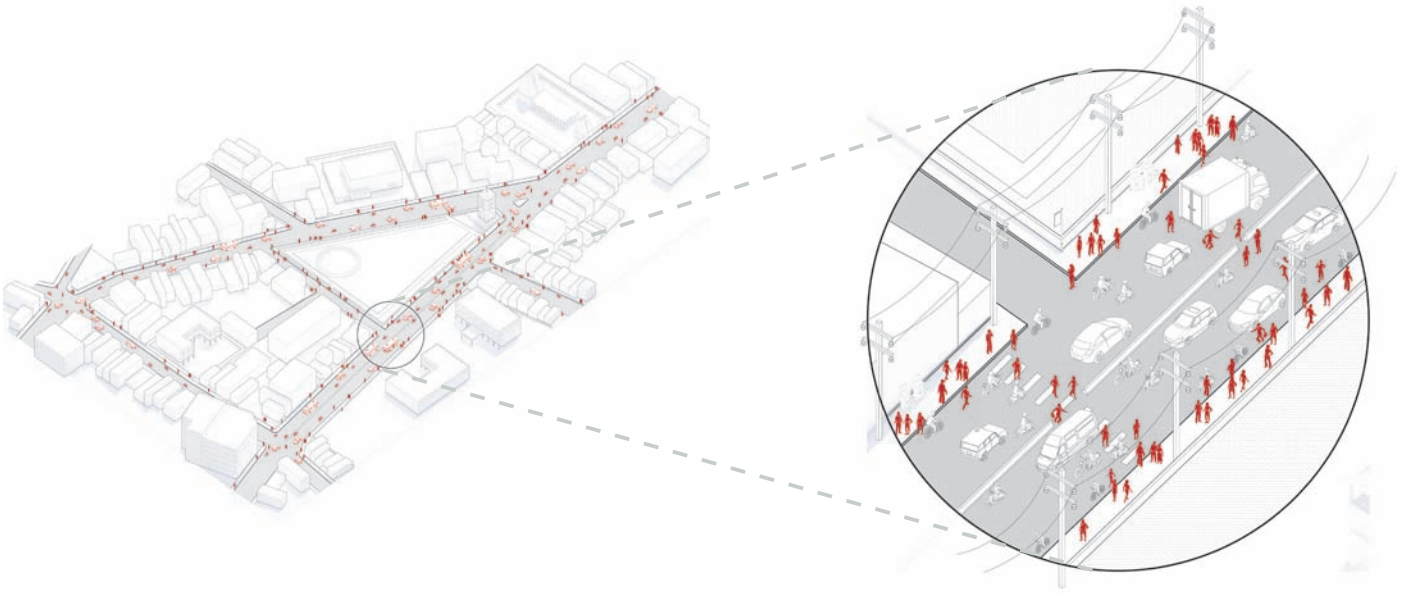
It would be desirable to be located in a neighborhood with schools/ colleges because it opens up the possibility to consider children and their needs in the design.

6 *Fix the intersection too!*

It is ideal to have at least one major intersection along the stretch to demonstrate how the redesigned street ROW performs at the intersection.



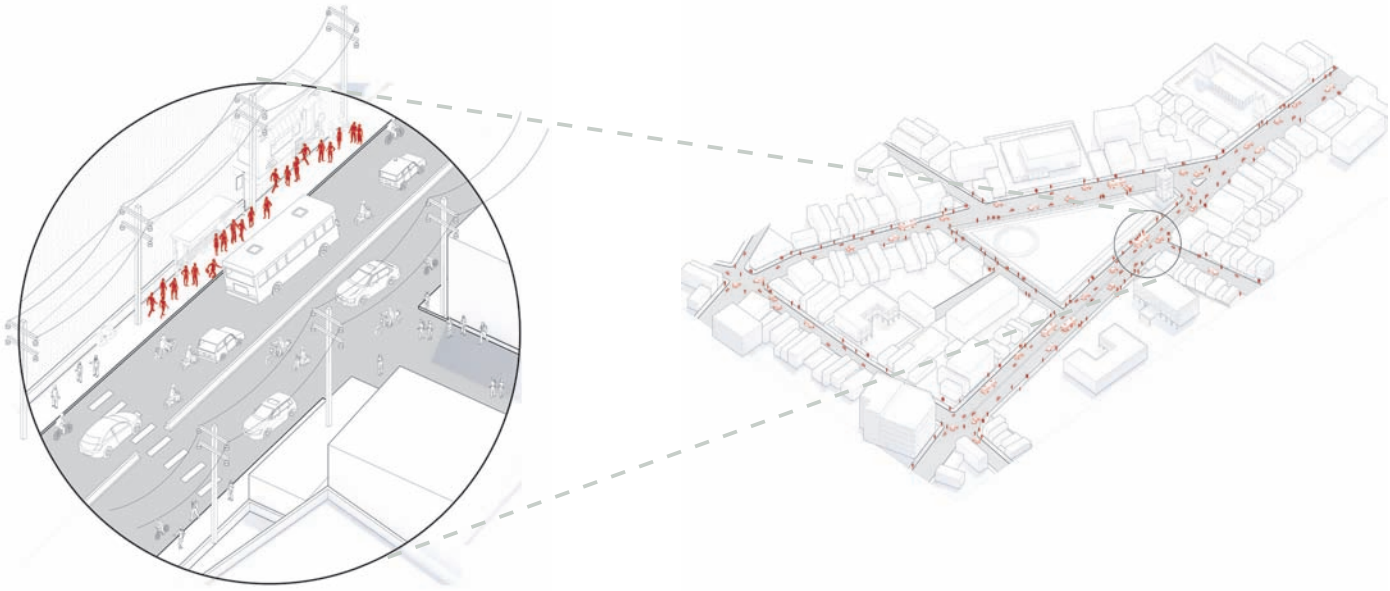
7 *Follow the pedestrians*



A busy street with heavy pedestrian volume

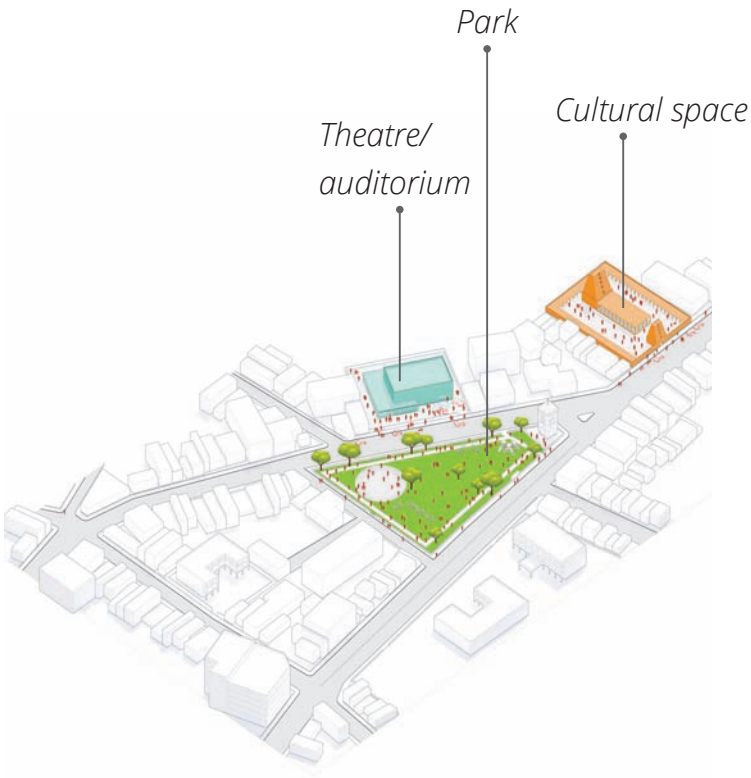
Streets with a higher number of pedestrian vehicular conflicts are desirable to test and demonstrate solutions for these conflicts.

8 Accommodate public transport



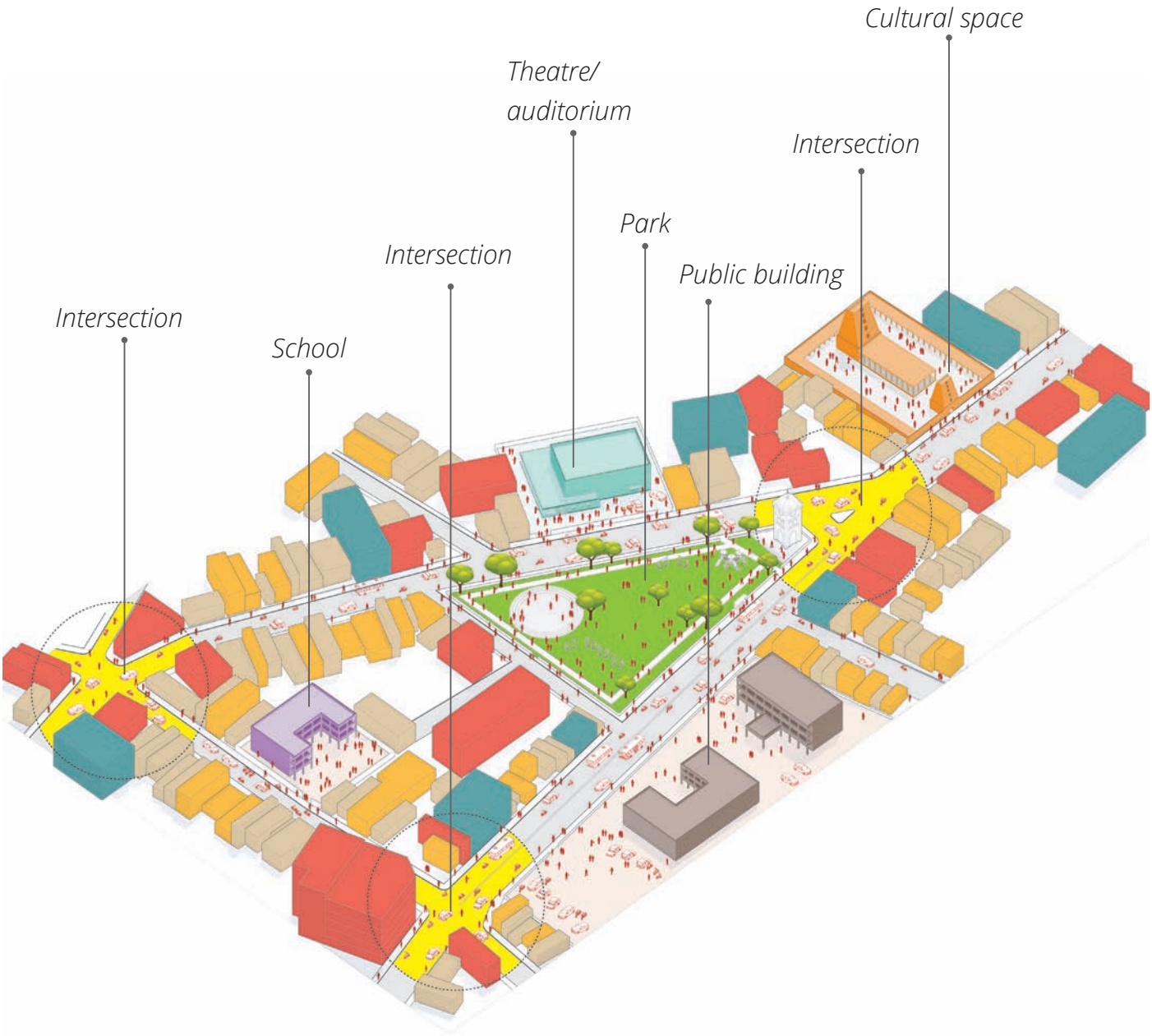
Bus stop

It is preferred to have at least one bus stop each in both directions handling buses round the clock on the chosen stretch to demonstrate how the redesigned ROW responds to a transit facility.



9 Look for variety in land uses

It would be desirable to have a public park/ open space/ residual spaces along the chosen stretch to demonstrate how these can be developed as part of the public realm. Cultural spaces, theatres and auditoriums also can offer interesting opportunities to activate the street.



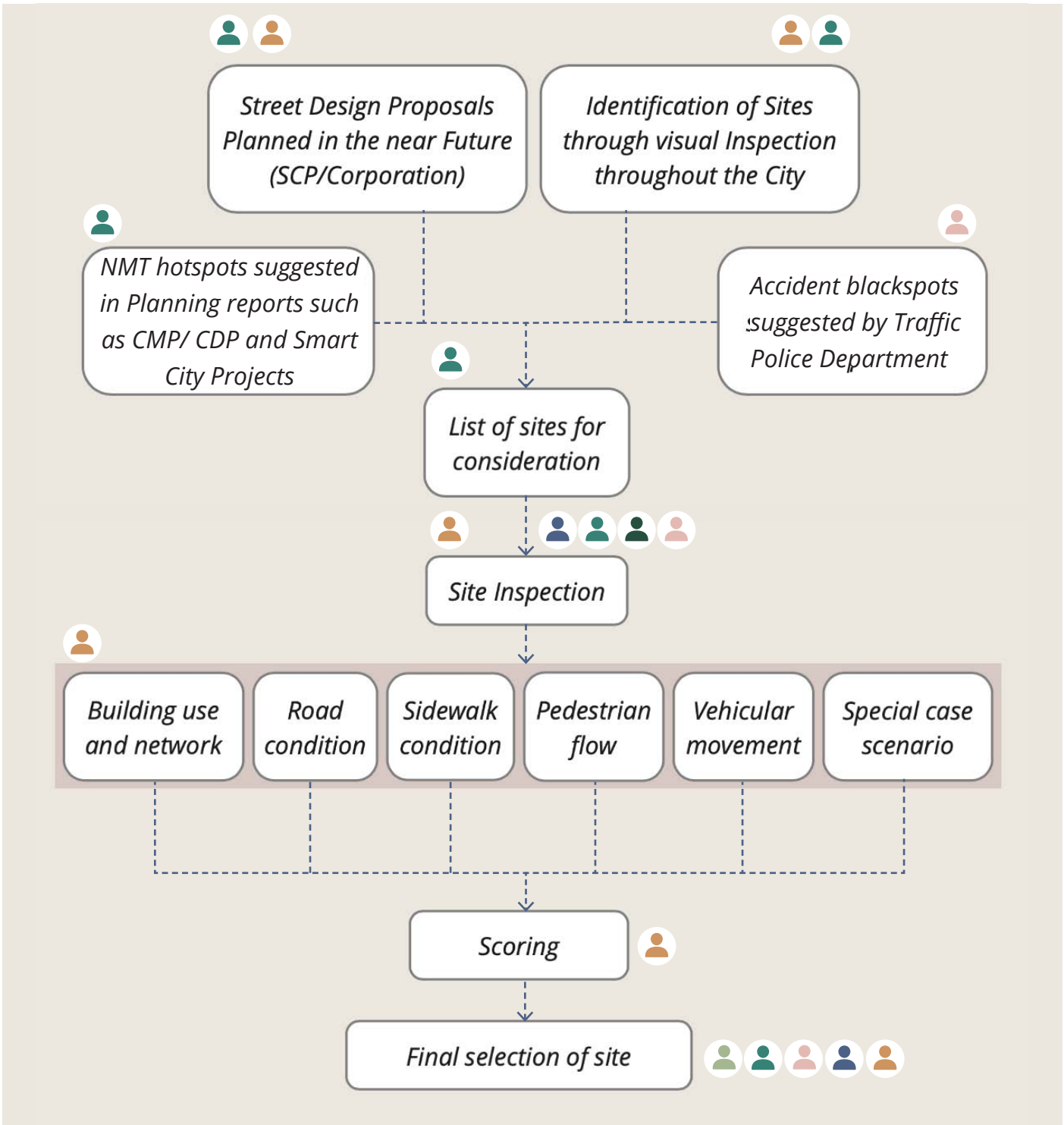
Alternatively, if a stretch is already under consideration for a tactical urbanism project, it is useful to do a quick assessment before finalizing the stretch against the scoring sheet in the facing page. This scoring is based on the 10 criteria already listed and serves as a ready reckoner.

Scoring sheet for evaluating a stretch for tactical urbanism

Criteria	*Favourable*	*Acceptable*	*Not favourable*
• What are the building uses along the stretch under consideration?	Commercial School/College Heritage building Transit hub Park/ Open space Public building	Shopping mall Theatre Religious building Water body Residential	Cemetery Liquor store Industrial uses Private campus
• What is the street network type of the chosen stretch?	Loop	Stretch with termini points	Segment of a long street/ highway
• Does the stretch have an intersection?	Yes	No	
• Is the carriageway surface even? Without potholes, bumps, manhole covers not leveled to grade?	Yes		No
• Is there ongoing construction activity along the street?	No		Yes
• What is the condition of the road shoulder?	Paved gutter	Evenly compacted earth	Dirt/ Unfinished/ Open drain
• Is there a sidewalk along the stretch?	Present and continuous	Present but not continuous	
• If sidewalk is present, what is the height of the sidewalk kerb?	150mm or lesser	More that 150mm but continuous	More than 150mm and not continuous
• Are there any obstacles along the pedestrian zone?	No obstacles	Utility boxes/ Light poles/ signage/ Garbage bins / Street furniture	Transformers Ditches/ trenches
• Is there a fixed railing along the pedestrian zone?	No	Yes but with several gaps	Yes, throughout the stretch
• Are there any activity hotspots present along the stretch such as ATM, teashop, eatery, bus stop, vendors etc.?	Yes	No	
• Is there a visible conflict between vehicular and pedestrian flow along the stretch?	Yes	No	
• Do pedestrians walk on the carriage way due to insufficient/ no sidewalk space?	Yes	No	

Additionally, the work flow diagram presented here encompasses all the steps required for this stage along with the players who need to be involved.

Work flow diagram for selecting a site for tactical urbanism



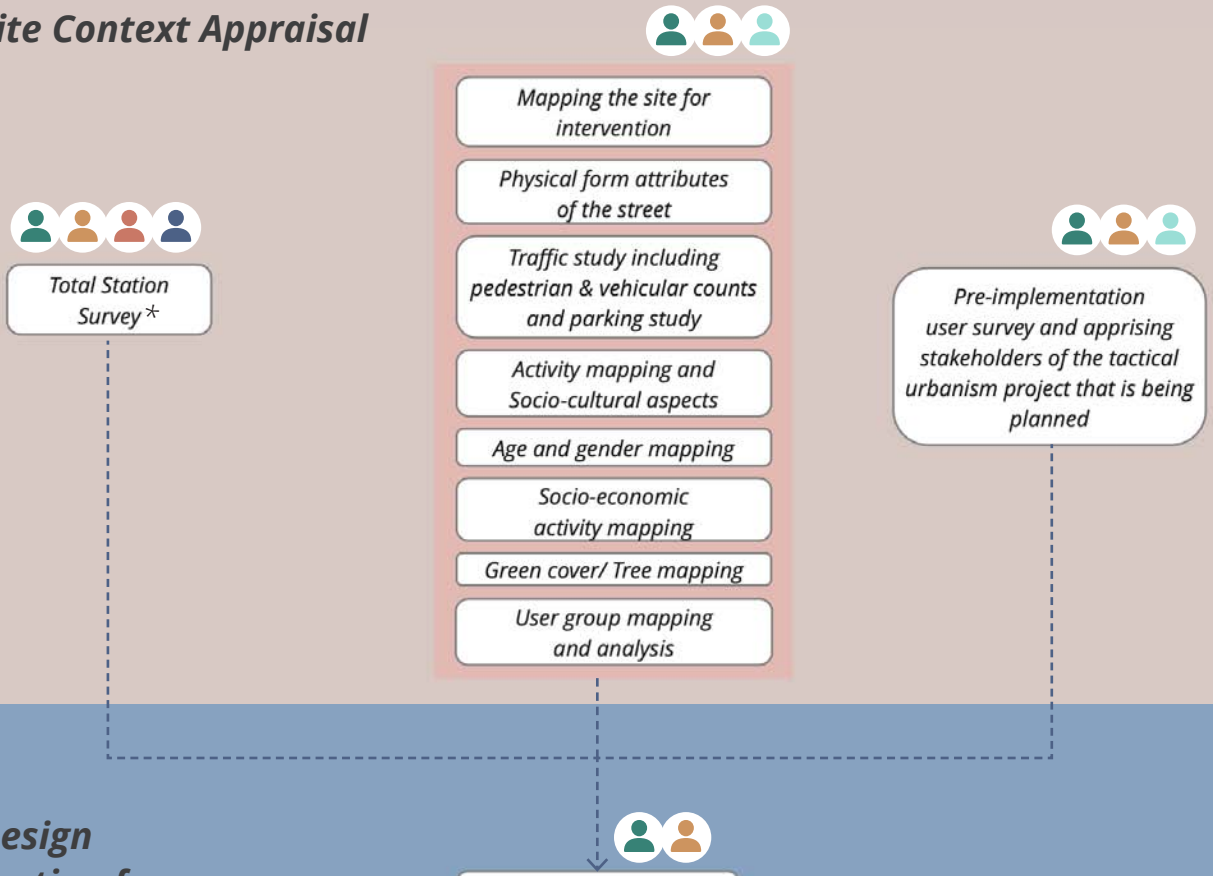
STAGE 2 - SITE CONTEXT APPRAISAL

Upon finalization of the site for tactical urbanism, the next stage is to get a deeper understanding of the site, its context, opportunities and constraints. This involves a series of quick on-ground data mapping exercises to ensure that the design proposals are data driven and not random conclusions. In addition to mapping the stretch, user surveys must also be conducted to derive an understanding of the challenges faced along the chosen stretch. Quick user surveys can be conducted for people using the stretch through the day while a more detailed assessment can be conducted by mapping the various stakeholder groups who access the stretch and reaching out to each group through tailored engagement techniques. The work flow diagram in the following page The work flow diagram in the following page shows how to start the design process and who should be involved including the list of data mappings that are required while chapter 3 on ***Thematic Interventions*** further elaborates the process for these data mappings.

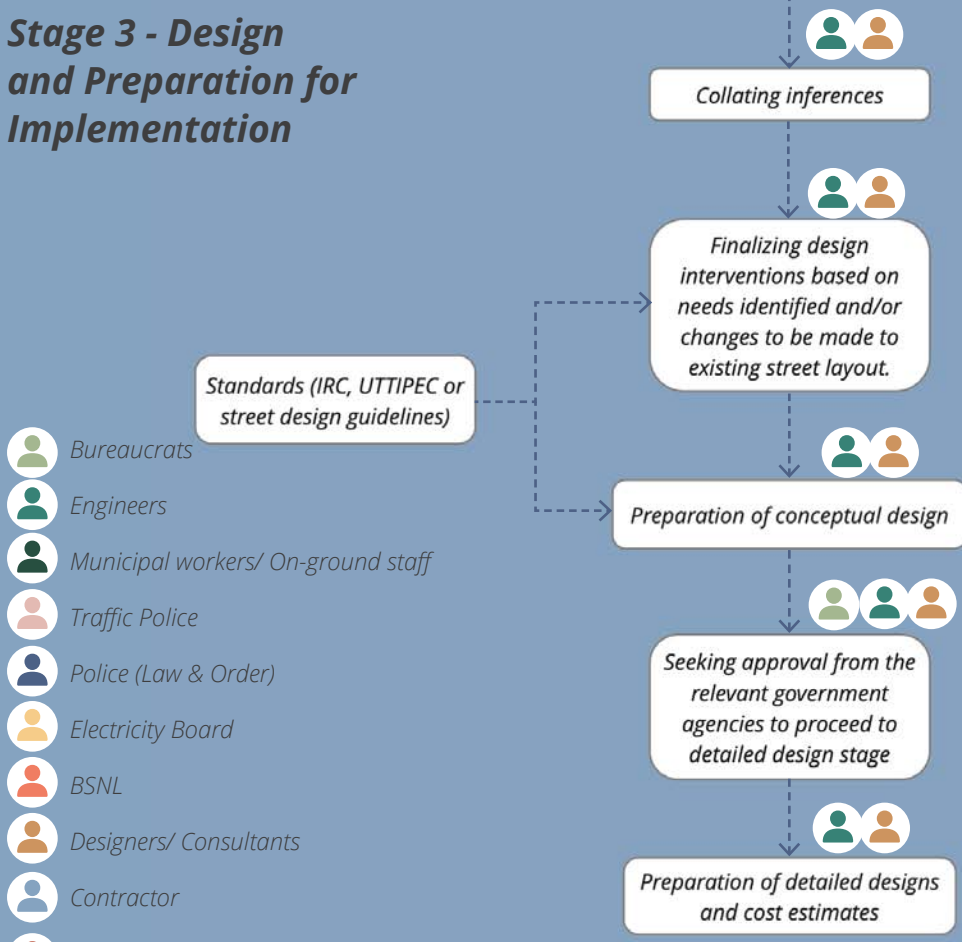
STAGE 3 - DESIGN AND PREPARATION FOR IMPLEMENTATION

After completion of the site context appraisal and deriving a set of findings that reinforce the need for specific thematic interventions, the next stage is to detail out the designs with a block estimate for approval from the city officials. The designs will have to be a contextual creative response while also adhering to existing standards such as the IRC and other guides. Upon approval of the design, a detailed cost estimate will need to be prepared in order to bring in a contractor for the implementation stage. The work flow diagram in the following page highlights these steps as a continuation of the site appraisal activities including the key players who are required for these activities.

Stage 2 - Site Context Appraisal



Stage 3 - Design and Preparation for Implementation



- Bureaucrats
- Engineers
- Municipal workers/ On-ground staff
- Traffic Police
- Police (Law & Order)
- Electricity Board
- BSNL
- Designers/ Consultants
- Contractor
- Survey Agency
- Visual documentation team
- Volunteers (citizens, RWAs, students)

** It is not compulsory to undertake a total station survey for a tactical urbanism project. The survey however is useful for detailing certain design elements that may be customized to the site's physical attributes.*

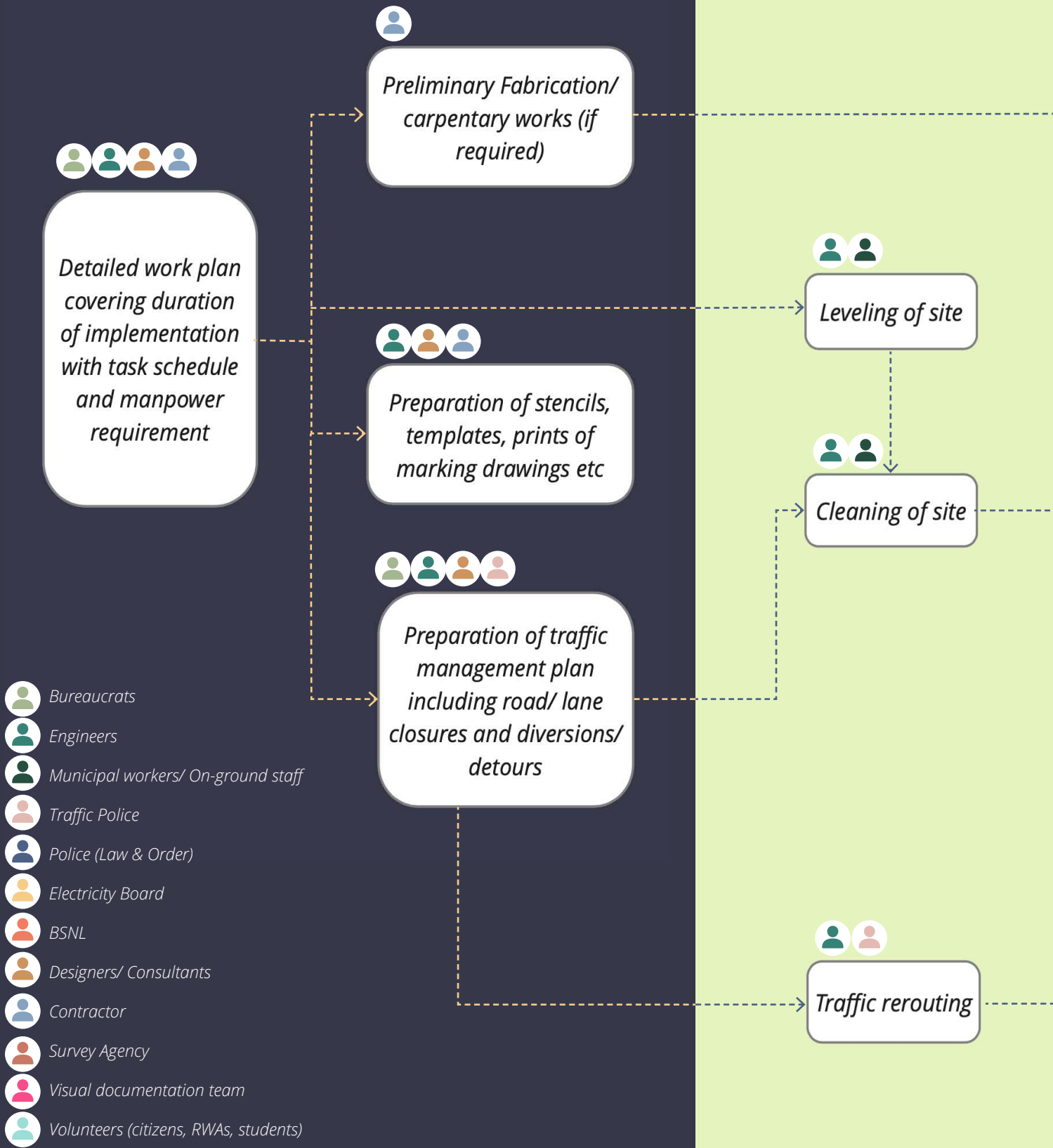
STAGE 4 - IMPLEMENTATION AND POST-IMPLEMENTATION EVALUATION

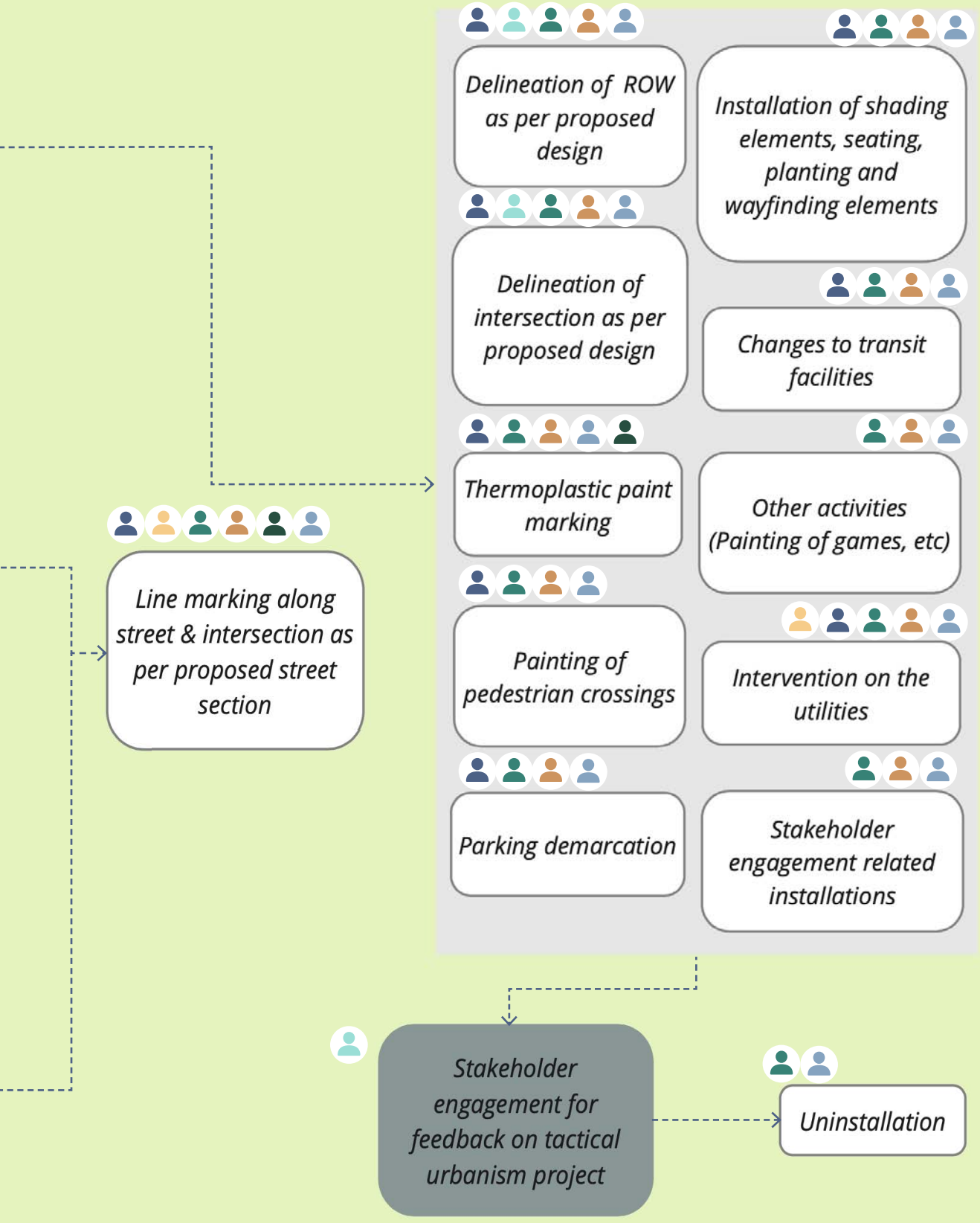
This stage involves moving from the drawing board to the street and therefore starts with a detailed work plan for execution that requires intense coordination specifically between all the city departments. In particular, a traffic management plan needs to be drawn up with the traffic police for road/ lane closures during the execution and changes as per design post-implementation. Since mostly, the implementation will take place through the night when traffic is low, the police department needs to be notified of said activity on the stretch including details of crew who will be involved in the implementation. Municipal workers and/ or volunteer groups must be organized to help with work on the ground. The site itself needs to be prepared i.e. cleaned and levelled to commence work.

Since post-implementation evaluation is the central aspect of a tactical urbanism project, documentation of the post-implementation phase i.e. how users are responding to the changes and also preparing an engagement strategy to seek feedback from users is an important activity for this stage.

The work flow diagram in the following spread lists out the various activities for this stage all the way up to uninstalling the interventions. Reusing or distributing materials used for the tactical urbanism project to those in need after uninstalling can be considered to ensure a zero waste exercise.

Stage 4 - Implementation and Post-Implementation Evaluation




Delineation of ROW as per proposed design
Installation of shading elements, seating, planting and wayfinding elements
Delineation of intersection as per proposed design
Changes to transit facilities
Thermoplastic paint marking
Other activities (Painting of games, etc)
Painting of pedestrian crossings
Intervention on the utilities
Parking demarcation
Stakeholder engagement related installations
Line marking along street & intersection as per proposed street section
Stakeholder engagement for feedback on tactical urbanism project
Uninstallation

WHEN NOT TO DO A TACTICAL URBANISM PROJECT?

In order to ensure that the tactical urbanism project meets its objectives, apart from meticulous planning prior to implementation, it is equally important to pay attention to the timing of execution for such a project. Some factors to keep in mind with regard to this are:

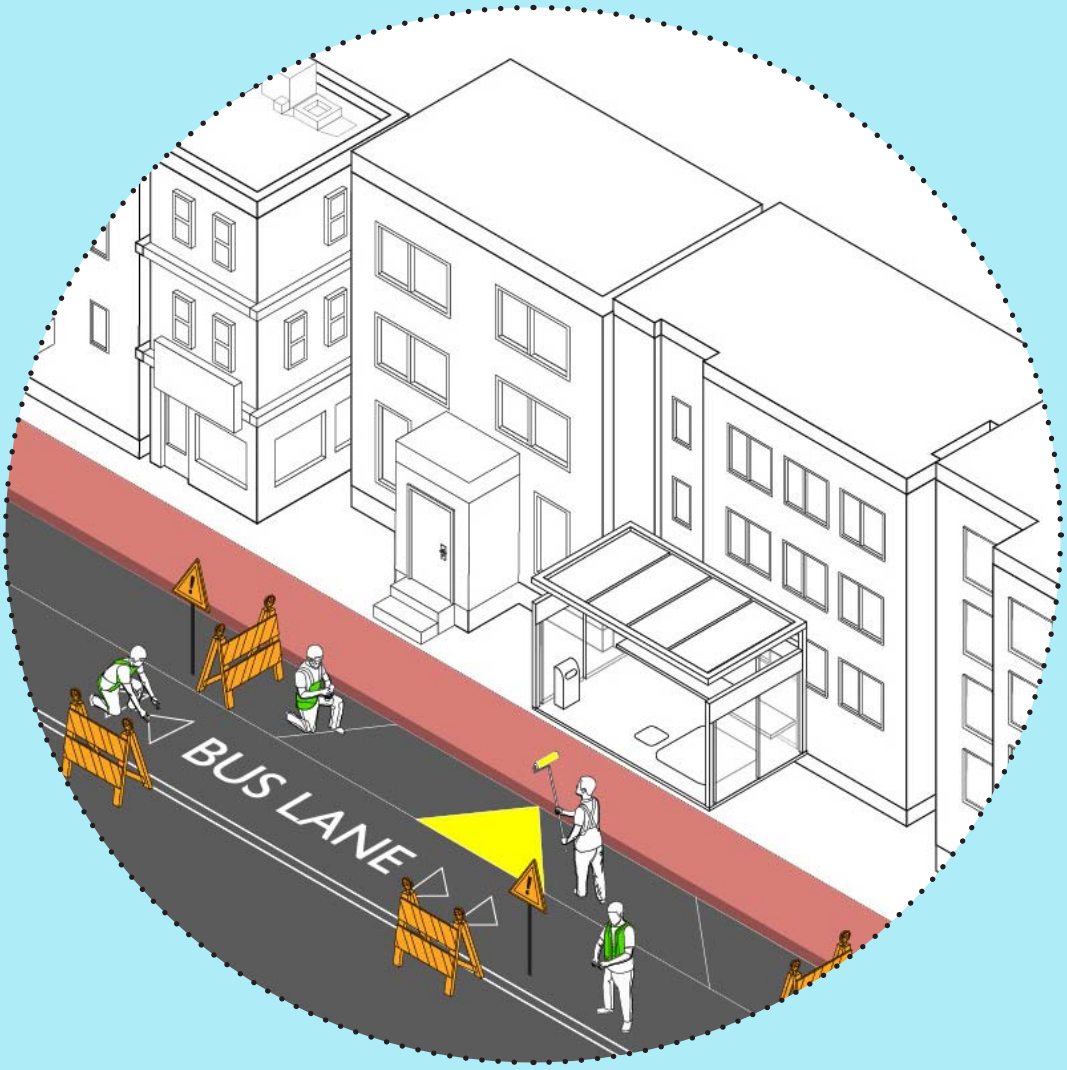
Weather conditions
Monsoon seasons are best avoided as precipitation of any kind can hinder the execution and ability of citizens to experience the changes made to their streets/ public spaces.

Festivals/ Events
The time period chosen for execution of the tactical urbanism project should not coincide with days of any other special/ specific event conducted on the same stretch or in the neighbourhood in which the street is located. For example events like religious festivals, street fairs or seasonal sales should be avoided as they cause a spike in the user activity pattern and may present an unexpected post-implementation evaluation. Similarly, electoral campaign periods should also be avoided as they too alter the usage pattern of the street. Ideally, the timing for a tactical urbanism project should be on a typical day of the year so as to respond to the everyday activity and movement patterns on that stretch.

Road conditions
It is important to verify with the local government agencies if there is a scheduled construction/ maintenance activity on the chosen street in order not to hamper the planning and execution of the tactical urbanism project.

3

THEMATIC INTERVENTIONS


BUS LANE

CONNECTING PLACES AND PEOPLE

Extended Sidewalks
Pop-up Bike Lanes

REDUCING CONFLICT BETWEEN MOBILITY AND LIVABILITY

Streamlining carriageway
Intersection fix
Pedestrian crossing
Traffic calming
Parking reorganization

IMPROVING ACCESS TO PUBLIC TRANSPORT

Bus stop improvements
Bus lanes/ Bus bay marking

PLACEMAKING TO IMPROVE LIVABILITY

Shade structures
Seating
Stationary activity zones
Lighting
Art in the street

WAYFINDING TO IMPROVE LEGIBILITY

Sign boards
Floor signage
Trail markings

CONNECTING PLACES AND PEOPLE

POSSIBLE DESIGN ELEMENTS

EXTENDED SIDEWALKS

POP-UP BIKE LANES

REQUIRED DATA AND MAPPINGS

Neighbourhood scale & connection to wider networks

A map showing the major landmarks such as commercial, recreational, public amenities, healthcare, religious centres, institutional, transit hubs and movement pattern within 1km radius of the selected stretch or 1 km extent on both sides of the selected stretch.

This mapping is useful to understand the context of the selected stretch at neighbourhood scale, the urban structure, neighbourhood character, pedestrian and vehicular movement patterns and whether there is scope for rerouting if needed.

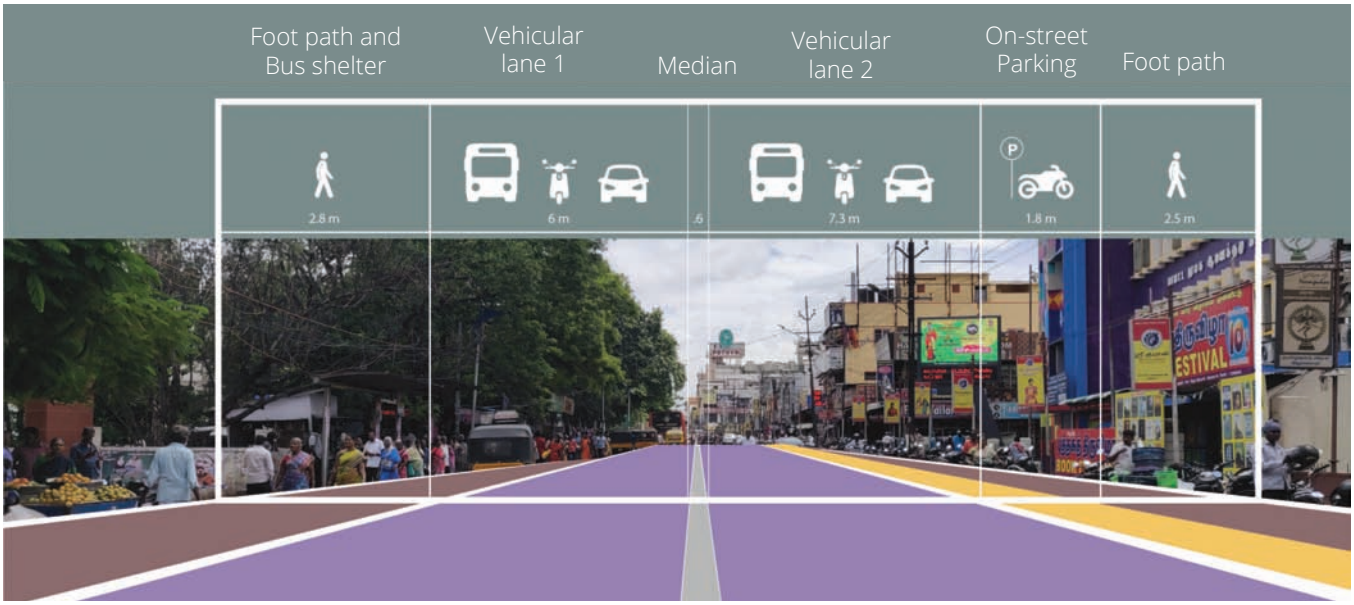
Sample mapping showing neighbourhood scale context and key movement corridors

- Commercial
- Recreational
- Public Amenities
- Hospitals
- Religious Buildings
- Institutions

Street Right of Way (ROW)

A drawing of the street section of the selected stretch showing the current right of-way distribution.

This is an extremely important step to determine the need and feasibility for intervention.



Sample representation of a street section showing right-of-way configuration of a street

Barrier free access

A drawing showing the locations that are not accessible by persons with disabilities (PwDs) or where their movement is hindered for example by level differences.

This mapping is important to determine if any minor interventions/ ramp additions can make the stretch barrier free.

Timesaver tip

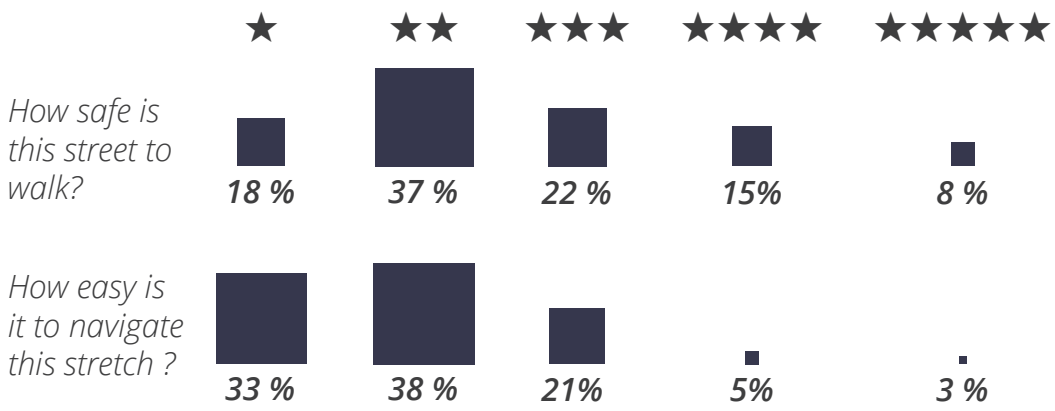
You should be able to drag a suitcase along the full length of the stretch without lifting it if it is compliant with barrier free access.

USER SURVEYS

Perception on navigation & road safety

Understanding user perception on road safety and ease of navigation along the stretch helps to determine priorities in terms of interventions.

Sample survey response data on road safety and ease of navigation



Note: Ratings are from low to high

RELEVANT STANDARDS AND THUMB RULES

Table 1 Capacity of Footpath

Width of side-walk (meter)	Design Flow in Number of Persons per hour			
	In Both directions		All in One direction	
	LOS B	LOS C	LOS B	LOS C
1.8	1350	1890	2025	2835
2	1800	2520	2700	3780
2.5	2250	3150	3375	4725
3	2700	3780	4050	5670
3.5	3150	4410	4725	6615
4	3600	5040	5400	7560

The land use adjacent to roads significantly influences generation of pedestrian traffic Recommended width of footpath along various landuses are given in **Table 2.**

Table 2 Required Width of Footpath as per Adjacent Landuse

Minimum obstacle free walkway width and Residential/ Mixed Use Areas	1.8 m
Commercial/ Mixed Use Areas	2.50 m
Shopping frontages	3.5 m to 4.5 m
Bus Stops	3 m
High Intensity Commercial Areas	4 m

Sidewalk design standards *Source: IRC 103: 2012*

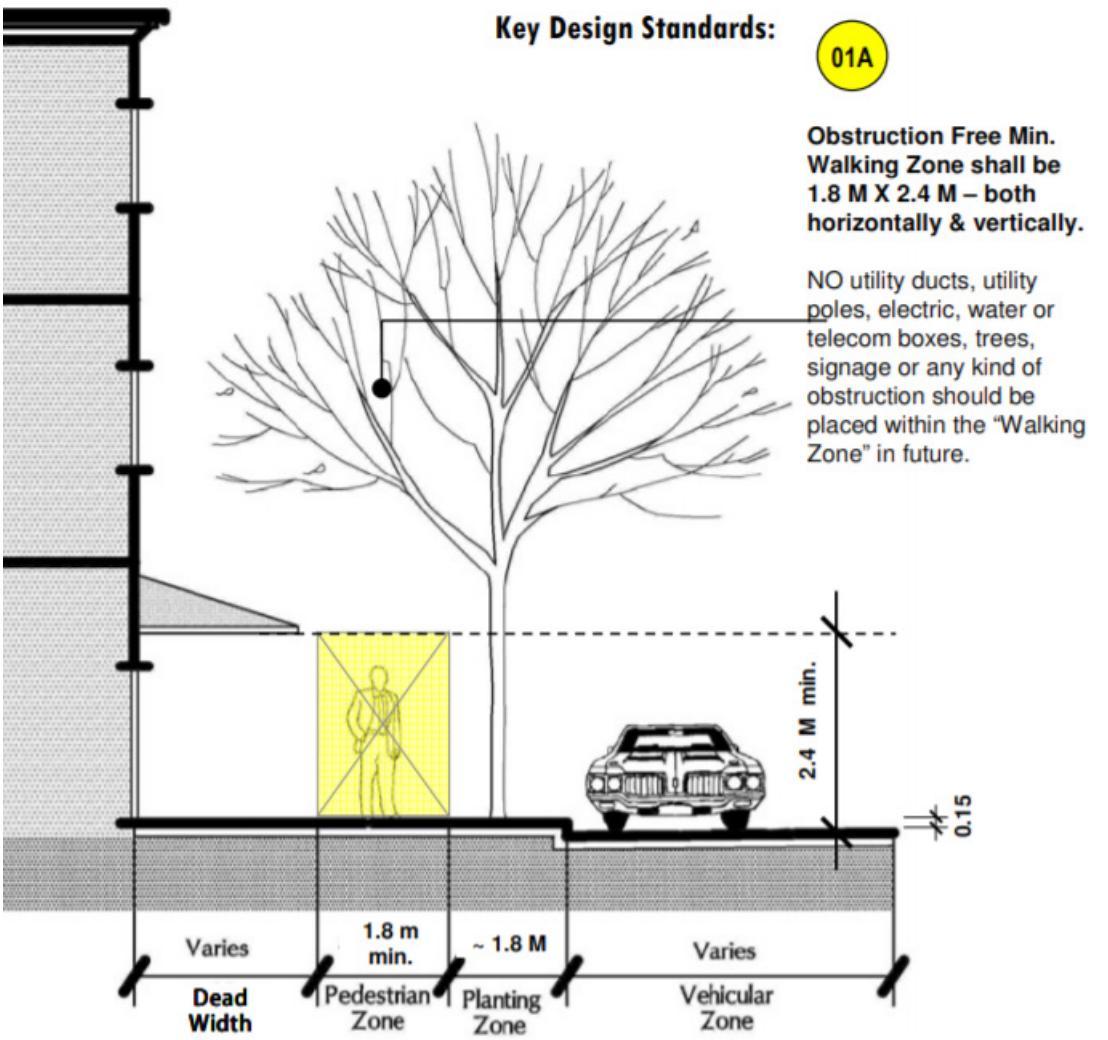
Number of person per hour		Required width of footpath (metre)
All in one direction	In both directions	
1200	800	1.5
2400	1600	2.0
3600	2400	2.5
4800	3200	3.0
6000	4000	4.0

Source: IRC-86:1983

Sidewalk design standards

In busy areas like bus stops, railway stations, recreational areas, the width of sidewalk should be suitably increased to account for accumulation of pedestrians.

Source: STREET DESIGN CHECKLIST -UTTIPEC



Source: Street design guidelines UTTIPEC DDA 2009

Sidewalk design standards

No obstructions allowable within this clear height; Tree branches within this height to be pruned with due permissions; All advertisement panels, posts, poles, junction boxes, public utility structures etc. to be removed.

Source: STREET DESIGN CHECKLIST -UTTIPEC

Kerb ramp

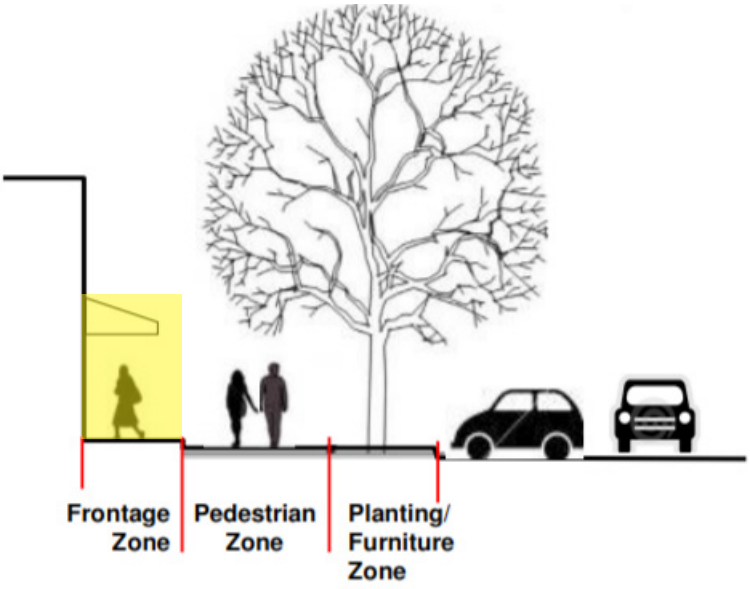
1:12 Minimum Slope at all level change points;
1.2 M is the minimum width of ramp.

Source: UTTIPEC - STREET DESIGN CHECKLIST

Frontage zone or dead width standards

For footpaths in shopping area, an extra 1m should be added to the stipulated 4m width. In other situations where footpaths pass next to buildings and fences, a dead width of 0.5M can be added.

Source: IRC 103:2012 and Source: Street design guidelines UTTIPEC DDA 2009



Cycle track standards

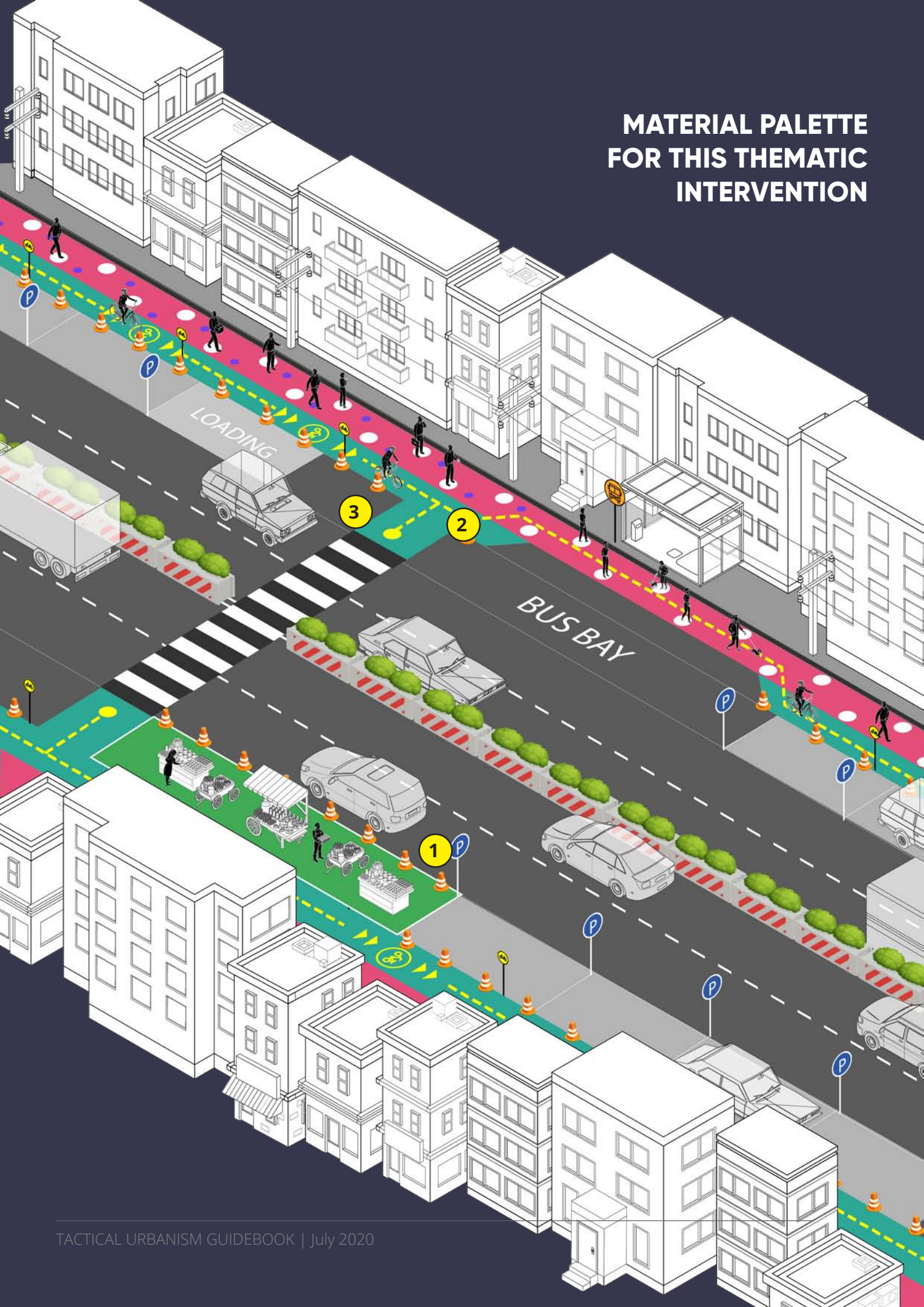
Source: IRC 86 - 1983

Width of cycle track		Capacity in number of cycles/hour	
		One-way traffic	Two-way traffic
Two lanes	(3 m)	250 to 600	50 to 250
Three lanes	(4 m)	over 600	250 to 600
Four lanes	(5 m)	——	over 600

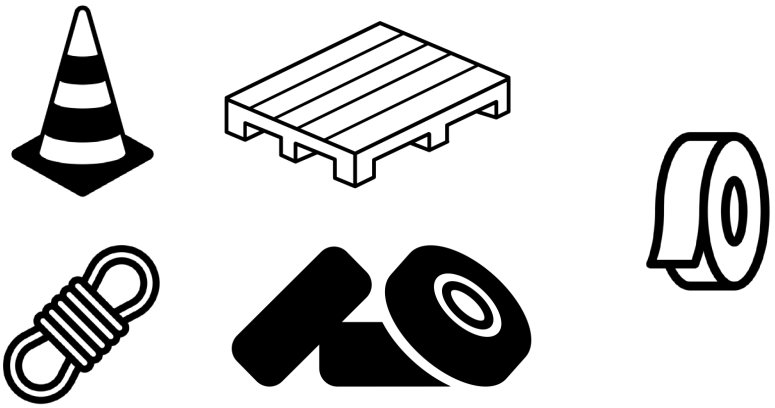
KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *How easy is it to walk to this stretch?*
- *Can one reach this stretch via public transport?*
- *Is the access to and from the nearest public transport node convenient to walk to?*
- *Is there adequate space for walking to start with?*
- *Is the carriageway lane configuration streamlined for smooth flow of traffic?*
- *Does the ROW accommodate all the user groups on the street proportionately?*
- *Is the stretch barrier free?*

MATERIAL PALETTE FOR THIS THEMATIC INTERVENTION

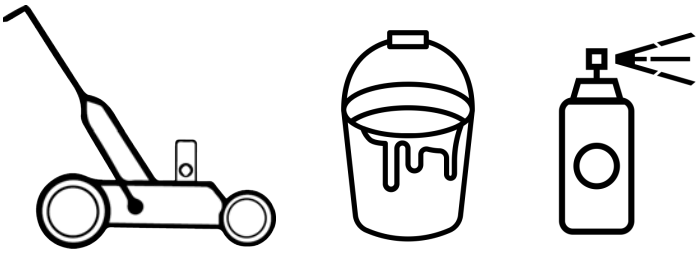


1 *ROW Demarcation*



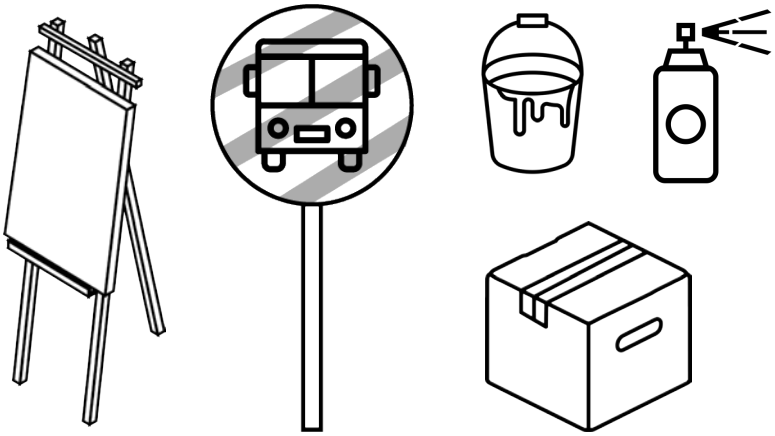
- Traffic cones
- Delineators
- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

2 *Surface Marking*



- Acrylic distemper paint
- Floor coat emulsion paint
- Water based epoxy paint
- Thermoplastic paint
- Spray paint
- Aerosol line marking machine

3 *Signage*



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- Thermoplastic paint
- Spray paint
- Reflective boards
- Easels
- Mill board/ MDF board
- Cardboard

REDUCING CONFLICT BETWEEN MOBILITY AND LIVABILITY

POSSIBLE DESIGN ELEMENTS

STREAMLINING CARRIAGEWAY

INTERSECTION FIX

PEDESTRIAN CROSSING

TRAFFIC CALMING

PARKING REORGANIZATION

REQUIRED DATA AND MAPPINGS

City context map

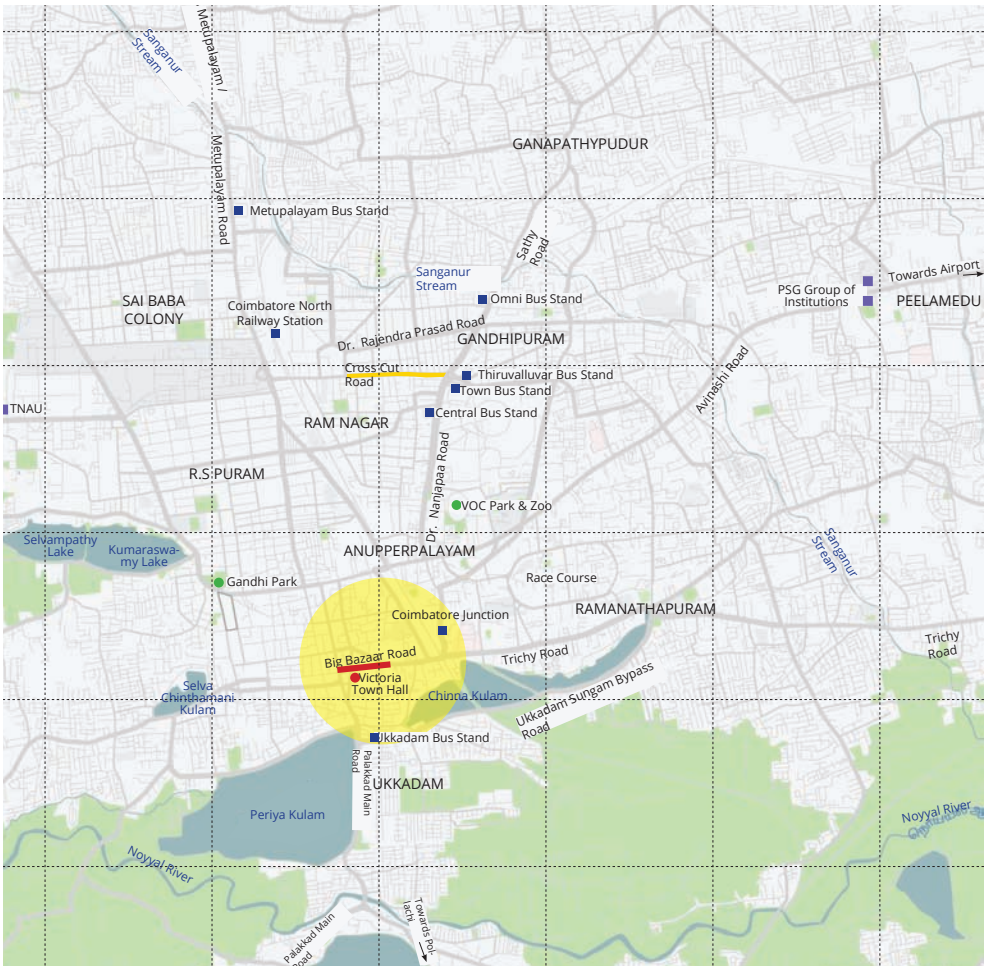
A map showing the neighbourhoods and major landmarks such as recreational, public amenities, institutional and transit hub at a city level

This mapping is important to understand the history and context of the selected stretch at the city scale and its significance with respect to the overall movement patterns in the city. movement patterns

Sample mapping showing the selected street stretch in relation to the overall street network for the city

Major landmarks

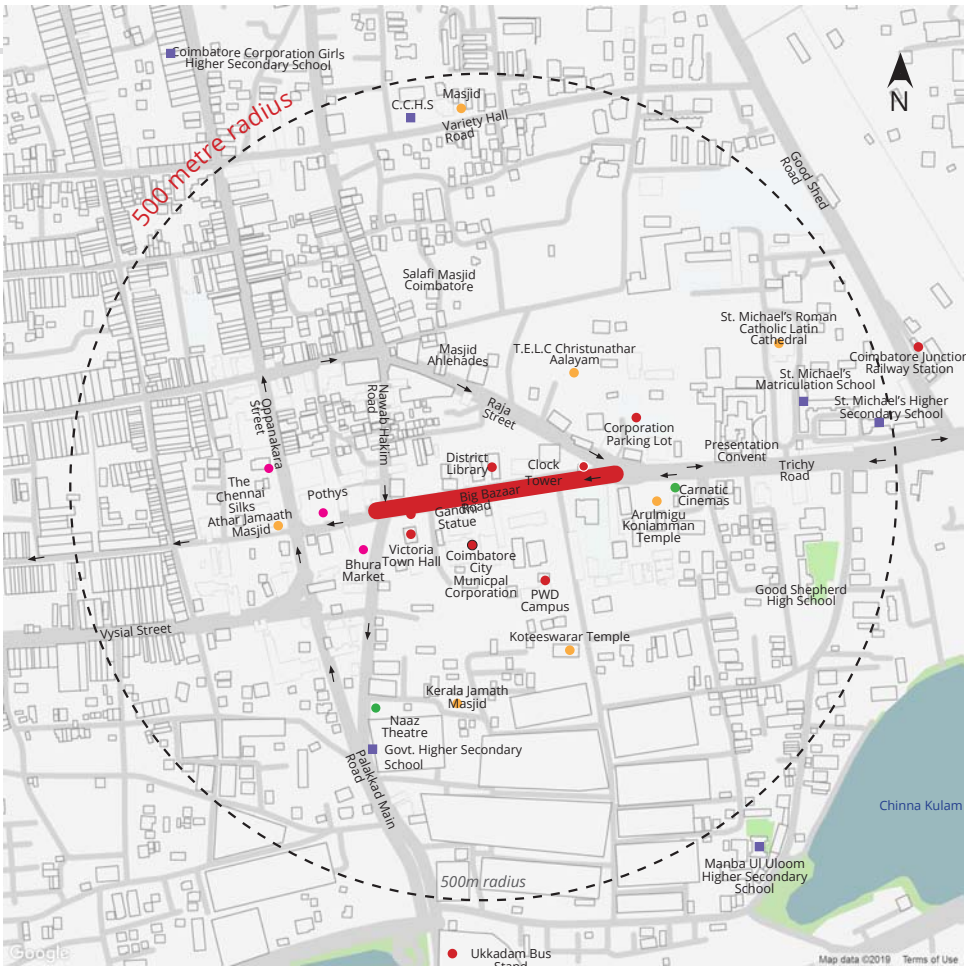
- *Commercial*
- *Recreational*
- *Public Amenities*
- *Hospitals*
- *Religious*
- *Institutions*
- *Transit*



Block Structure

A map locating the major crowd generators such as commercial, recreational, public amenities, healthcare, religious centres, institutional, transit hubs and movement patterns within 500m radius of the selected stretch.

This mapping is important to understand the street networks, the level of permeability, places of public gathering and movement pattern at the neighbourhood level in relation to its grain.



Sample mapping showing the block structure within a 500 metre radius of the chosen stretch

Major landmarks

- *Commercial*
- *Recreational*
- *Public Amenities*
- *Hospitals*
- *Religious*
- *Institutions*

Vehicular count

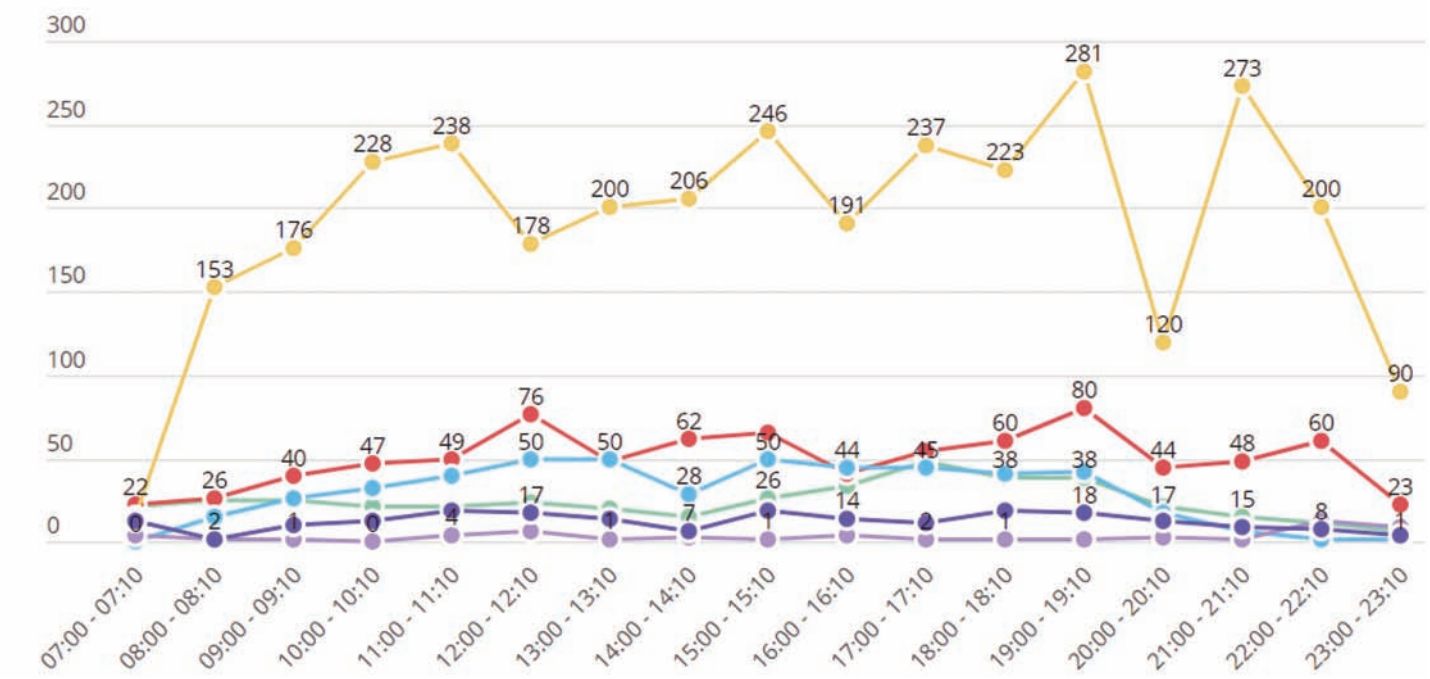
Counting the number of vehicles round the clock to understand variations in volume of traffic on the carriageway through the day will help ascertain the appropriate number of lanes required for smooth flow of traffic while also sharing the ROW with other users.

** Refer to Vehicular count template in Annexures.*

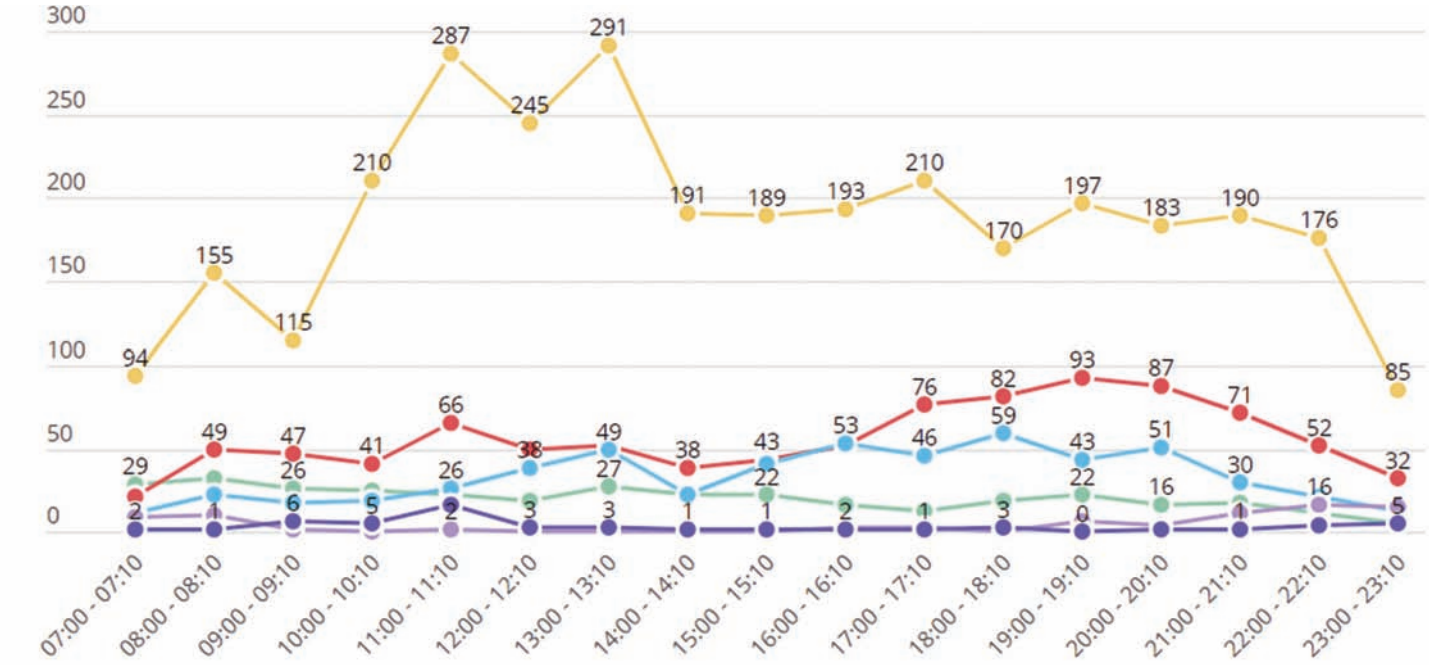
Sample recording of weekday and weekend vehicular counts

Lorries | Tempos | Buses | Autos | Cars | Two wheelers

Weekday



Weekend



Intersection study

A round the clock observational study of the intersection is essential to understand the movement patterns and volumes of different types of vehicles in each arm of the intersection. It also helps to understand if there are any conflict points at the intersection that may result in reduced road safety for pedestrians and motorists.

Sample mapping showing flow directions and volumes at intersections

Timesaver tip

Procure crash data/ road accident data from traffic police to check if there are major conflicts at the intersection in question.

Pedestrian crossings

Mapping existing pedestrian crossings and checking for the efficacy of its location while also paying attention to where people tend to cross will help determine if any new crossings are required.

Sample mapping

Traffic speeds

Recording the average speed of various vehicles on the road with speed cams will lead to inferences on whether traffic calming measures are required along the stretch. Working with the Traffic Police department will be ideal for this. It is possible that they may already have this data.

Timesaver tip

Smartphone apps are available to collect data on speed of vehicles captured through phone camera.

Sample mapping

Parking survey

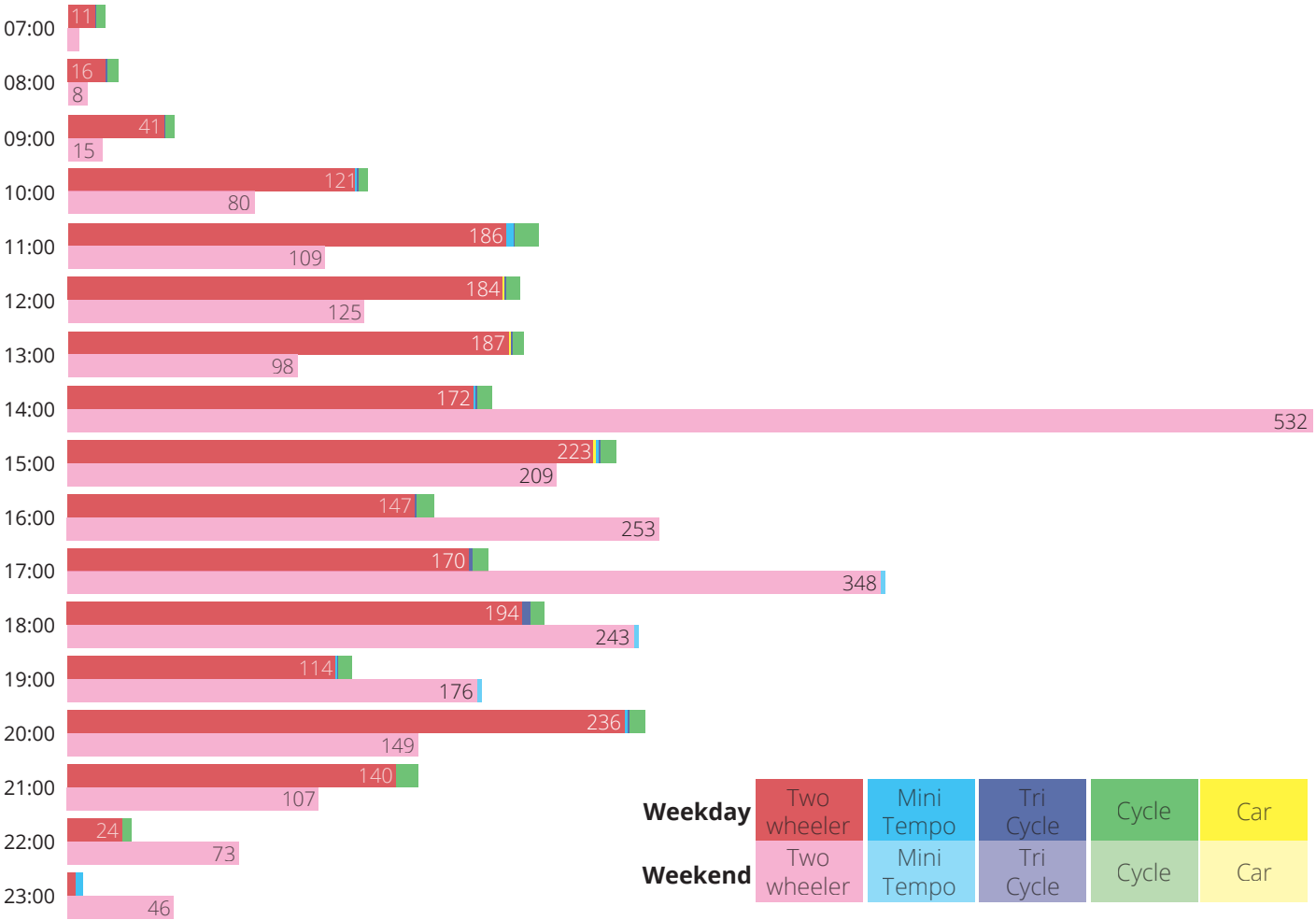
Counts of number of vehicles parked along the stretch at different times will help ascertain the parking demand/ occupancy rate through the day.

It is also useful to take into account frequency and location of any loading & unloading activities if there are commercial building uses along the stretch.

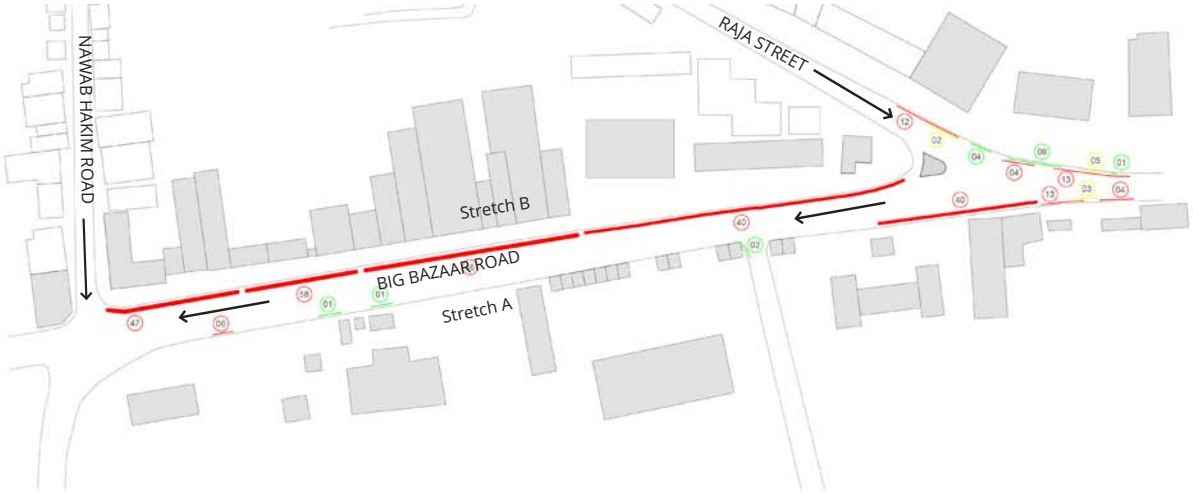
This data will help determine the quantum of parking spaces to be allocated in the street ROW. Additionally, it would also be useful to scan for alternate locations within 500 metres where parking can be relocated temporarily if possible.

** Refer to Parking survey template in Annexures.*

Sample counting of parking occupancy through the day on a street



Sample mapping of parking locations on a street



Timesaver tip

Refer data from the city's Comprehensive Mobility plan or other mobility studies if available.

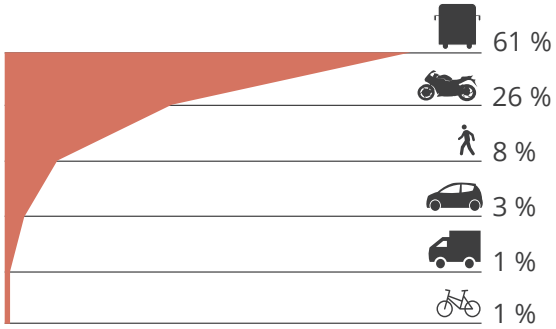
USER SURVEYS

Perception on accessibility, navigation & road safety

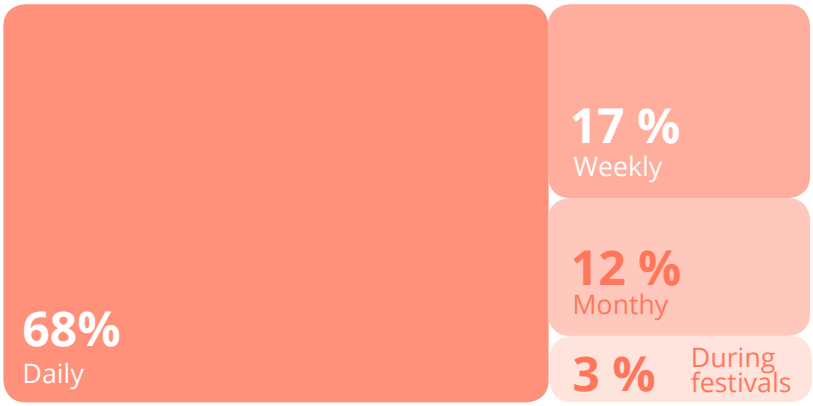
Determining user perception towards driving at the intersection; ease of crossing for pedestrians; means of reaching the stretch, and frequency & purpose of visiting the stretch will help ascertain if design elements to address such issues need to be included.

Sample response data

HOW DID YOU REACH THIS STREET?



HOW OFTEN DO YOU VISIT THIS STREET ?



Sample response data

RELEVANT STANDARDS AND THUMB RULES

Carriage way lane width standards. *Source: IRC 86 - 1983*

Description	Width (metres)
Single lane without kerbs	3.50
2-lane without kerbs	7.00
2-lane with kerbs	7.50
3-lane with or without kerbs	10.5/11.0
4-lane with or without kerbs	14.0
6-lane with or without kerbs	21.0

Notes : 1. For access roads to residential areas, a lower lane width of 3 m is permissible.
2. Minimum width of a kerbed urban road is 5.5 m including allowance for a stalled vehicle.

Note:
The lane width can be reduced upto 2.75M as a traffic calming measure.

Turning radius

Smaller turning radii increases pedestrian safety by shortening crossing distance, increasing pedestrian visibility for drivers, decreasing vehicle turning speed; and making drivers look out for pedestrians while taking the turn.

Maximum corner radius of kerb = 12M
It may be reduced to 6M in residentail areas to slow down turning buses, trucks etc.
Source: Street design guidelines UTTIPEC DDA 2009

Note: Can be reduced upto 3m to reduce the speed of turning vehicles and make it more safer for pedestrians

type of vehicle	length (m)	width (m)	height (m)	turning circle radius (m)
motorcycle	2.20	0.70	1.00[2]	1.00
car				
- standard	4.70	1.75	1.50	5.75
- small	3.60	1.60	1.50	5.00
- large	5.00	1.90	1.50	6.00
truck				
- standard	6.00	2.10	2.20[1]	6.10
- 7.5t	7.00	2.50	2.40[1]	7.00
- 16 t	8.00	2.50	3.00[1]	8.00
- 22t (+16 t trailer)	10.00	2.50	3.00[1]	9.30
refuse collection vehicle				
- standard 2-axle vehicle (4 × 2)	7.64	2.50	3.30[1]	7.80
- standard 3-axle vehicle (6 × 2 or 6 × 4)	1.45	2.50	3.30[1]	9.25
fire engine	6.80	2.50	2.80[1]	9.25
furniture van (with trailer)	9.50 (18.00)	2.50	2.80[1]	9.25
standard bus I	11.00	2.50[3]	2.95	10.25
standard bus II	11.40	2.50[3]	3.05	11.00
standard vehicle - bus	11.00	2.50[3]	2.95	11.20
standard vehicle - articulated bus	17.26	2.50[3]	4.00	10.50–11.25
standard articulated truck	18.00	2.50[4]	4.00	12.00[5]
tractor		2.50[4]	4.00	
trailer		2.50[4]	4.00	
max. values of the road regulations				
2-axle vehicle (4 × 2)	12.00	2.50[4]	4.00	12.00
vehicle with more than 2 axles	12.00	2.50[4]	4.00	12.00
tractor with semi-trailer	15.00	2.50[4]	4.00	12.00
articulated bus	18.00	2.50[4]	4.00	12.00
trucks with trailer	18.00	2.50[4]	4.00	12.00

notes:
[1] height of driver's cab; [2] total height with driver, about 2m; [3] with wing mirrors, 2.95m; [4] without wing mirrors; [5] turning circle radius adjusted up to max. as per regulations

source: Street design guidelines UTTIPEC DDA 2009

Mid-block crossings standards

Mid-block crossings must be provided for people to cross the street safely between building entries or bus stop locations or active land uses on opposite sides of the street.

Source: IRC 103:2012

• Residential Areas	• Spacing Range: Every 80–250 m • Coordinated with entry points of complexes; location of bus/ train stops, public facilities, etc.
• Commercial/ Mixed Use Areas	• Spacing Range: Every 80–150 m
• High Intensity Commercial Areas	• Pedestrianization if possible.

Pedestrian crossing

Pedestrian must be given the shortest possible direct route to cross the street.

Crossings must be provided at all the T-junctions .

The width of the pedestrian crossing must be adequate and should generally lie within a range of 2-4m. For divided carriageways, the crossing should, as far as possible, proceed uninterrupted through the median strip. In the event of the median strip being used as pedestrian refugee, adequate width of the median must be provided.

Source: IRC 103:2012

Pedestrian refugee width

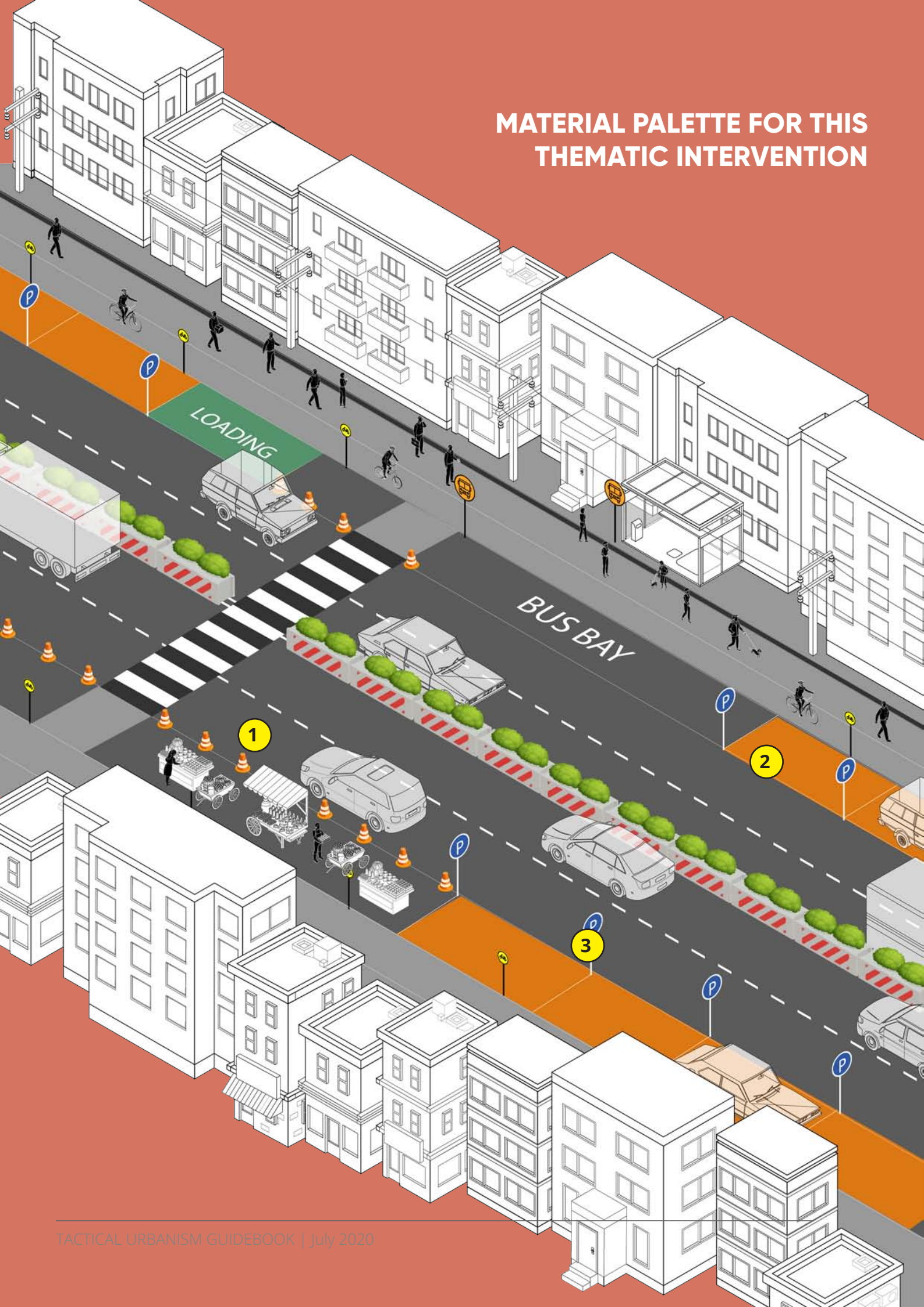
Source: IRC 103:2012

Medians (Pedestrian Refuge/Island)	
Width of Median	Absolute minimum 1200 mm
Centre of a staggered crossing	Minimum clear width between guard rails 2 m to allow two wheelchair users to pass one another.

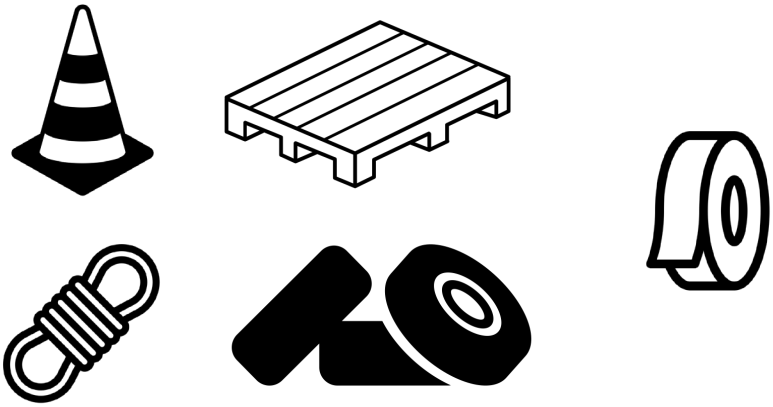
KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *What is the number of vehicles using this stretch at different times of the day during weekdays and weekends in each direction?*
- *What is the pattern of traffic flows?*
- *Are there any blind spots while turning at the intersection?*
- *If the carriageway is more than 11 metres, are there refuge islands?*
- *Are there traffic lights? Traffic police?*
- *Is there a pedestrian signal phase? If yes, how long is it?*
- *Are there existing pedestrian crossings? If yes, is it located in where people have a need for crossing?*
- *Is the average speed on the stretch safe for pedestrian movement?*
- *If not, do we need traffic calming elements?*
- *What percentage of parking is long term and short term?*
- *Is the parking space allocated as per demand or is there excess parking provided? Can the space currently allotted for parking be reallocated for other uses?*

MATERIAL PALETTE FOR THIS THEMATIC INTERVENTION

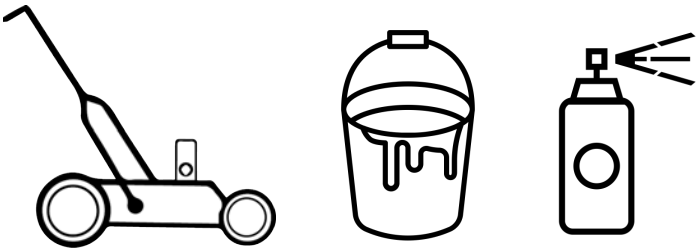


1 *ROW Demarcation*



- Traffic cones
- Delineators
- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

2 *Surface Marking*



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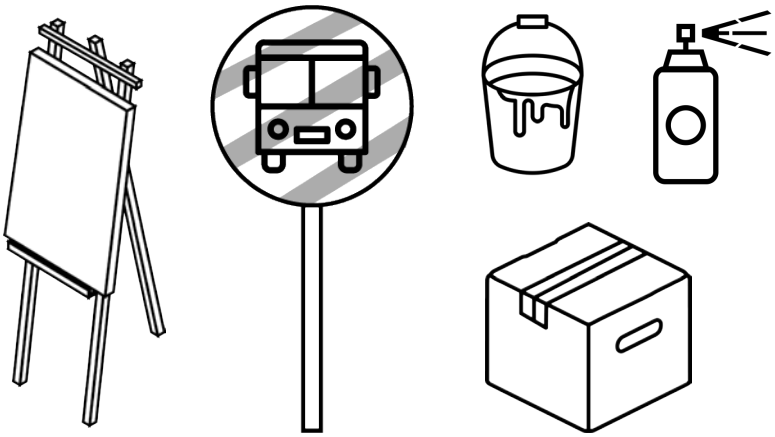
- Spray paint
- Aerosol line marking machine

3 *Signage*



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- Reflective boards
- Easels
- Mill board/ MDF board
- Cardboard

IMPROVING ACCESS TO PUBLIC TRANSPORT

POSSIBLE DESIGN ELEMENTS

BUS STOP IMPROVEMENTS

BUS LANES/ BUS BAY MARKING

REQUIRED DATA AND MAPPINGS

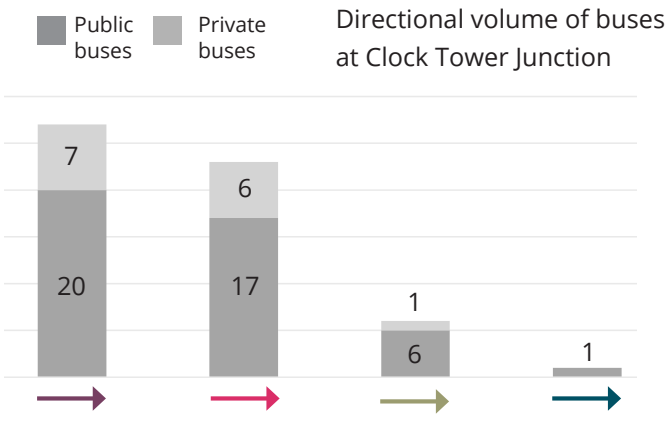
Bus stop location and bus routes

Mapping the location of bus stops, the frequency of buses, number of routes, average waiting time, number of passengers waiting during different times of the day, number of passengers boarding and alighting etc helps in calculating the actual space required at the bus stop.

Identify the peak hour and count the number of passengers waiting during the peak hours. Can check with traffic police or any shops/ vendors nearby for peak hour information.

Timesaver tip *Collect this data from bus transport authority if available.*

Sample mapping showing bus shelters as well as routes and frequency of public and private buses



Paratransit hubs and routes

Recording paratransit movement patterns along the street particularly the location of auto stands and para transit pick up / drop points and stands will ensure that they are accommodated in the design interventions appropriately.

Sample mapping

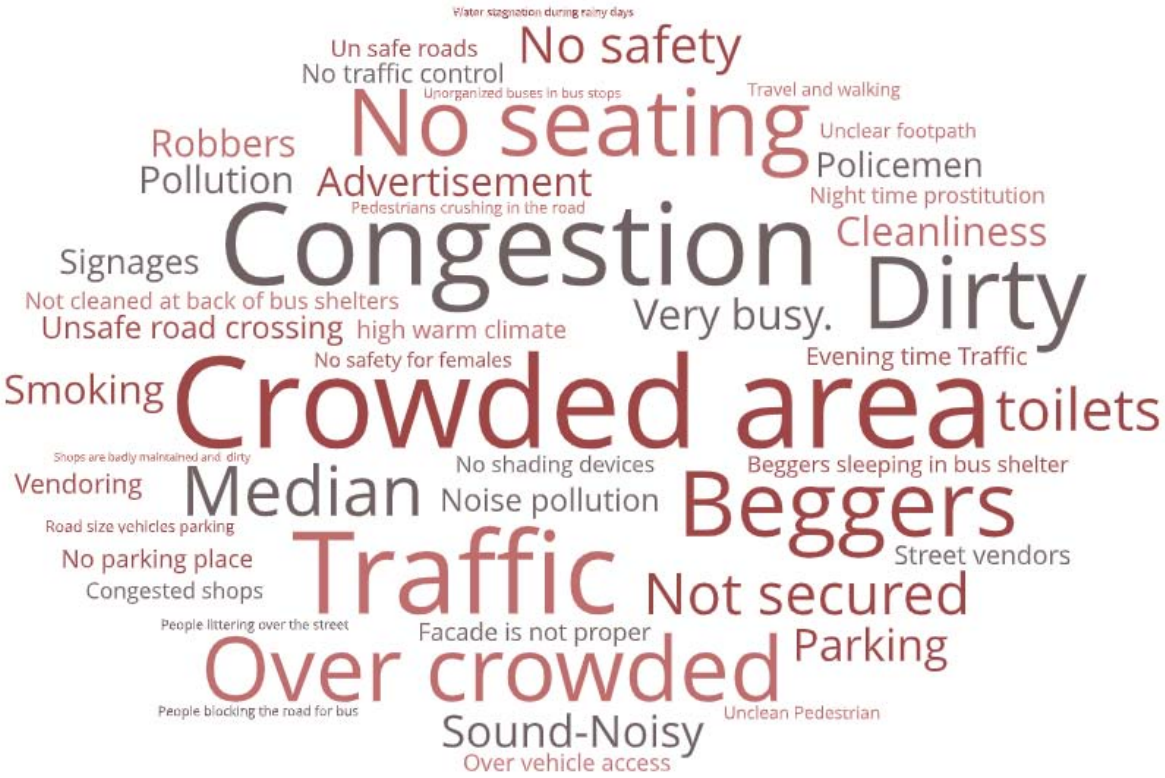
USER SURVEYS

Issues and Preferences at the bus stop

Seeking out user issues and preferences can span across several aspects-

- Questions related to safety and comfort while waiting for the bus
- Questions relating to amenities at the bus stop such as seating, shelter from rain and sun, information signage, lighting, refreshment kiosks, dust bins etc.

Sample responses data:

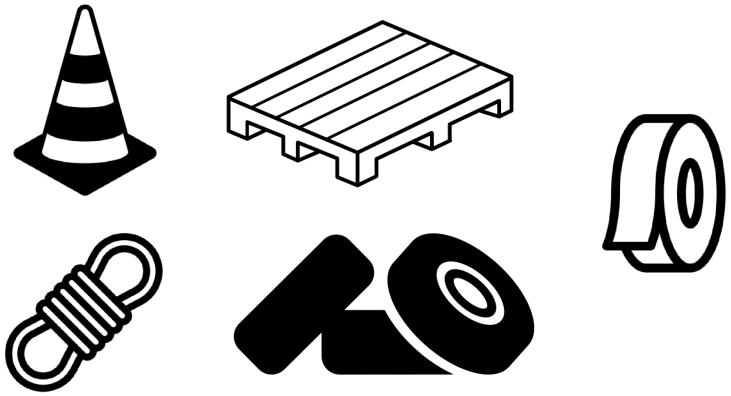


KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *Is the existing space enough for people to wait or do they end up waiting on the carriage way?*
- *Is there a need for extra seating or shading at the bus stop?*
- *Is there sufficient lighting at the bus stop?*
- *Is there adequate information signage at the bus stop?*
- *Do we need to allocate a separate bus lane and/ or stagger bus stops because of heavy volume of bus traffic?*
- *Do we need to demarcate bus bays in the ROW?*
- *Does the building use along this stretch allow us to stagger bus stops within a 50m stretch?*
- *Do we need to accommodate paratransit pick up and drop in the ROW?*

MATERIAL PALETTE FOR THIS THEMATIC INTERVENTION

1 *ROW Demarcation*



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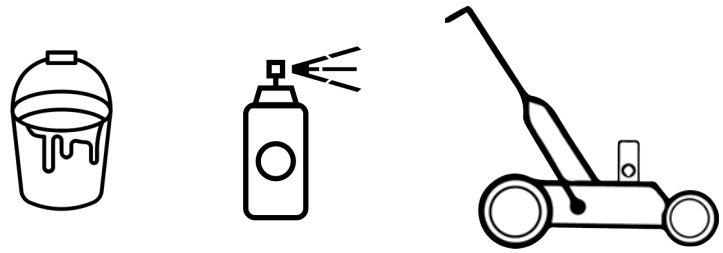

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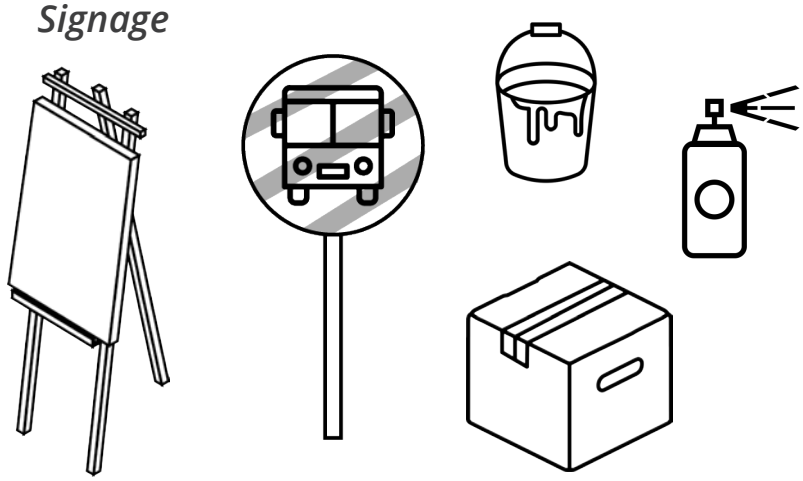

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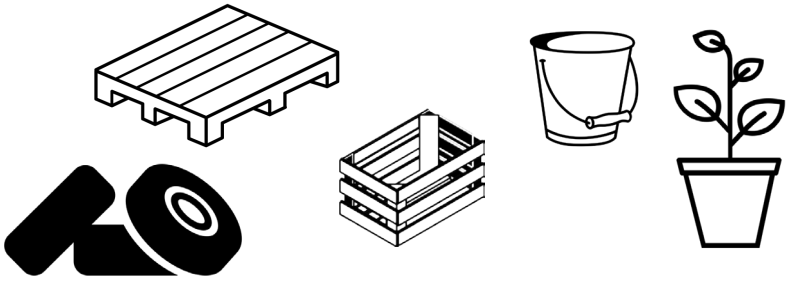
- Cardboard

4 *Seating/ Livability*



- Wooden Pallets
- Tyres
- Wooden Crates
- Buckets/ Used paint buckets
- Flower pots/ Plants

PLACEMAKING TO IMPROVE LIVABILITY

POSSIBLE DESIGN ELEMENTS

SHADE STRUCTURES

SEATING

STATIONARY ACTIVITY ZONES

LIGHTING

ART IN THE STREET

REQUIRED DATA AND MAPPINGS

Building heights & orientation

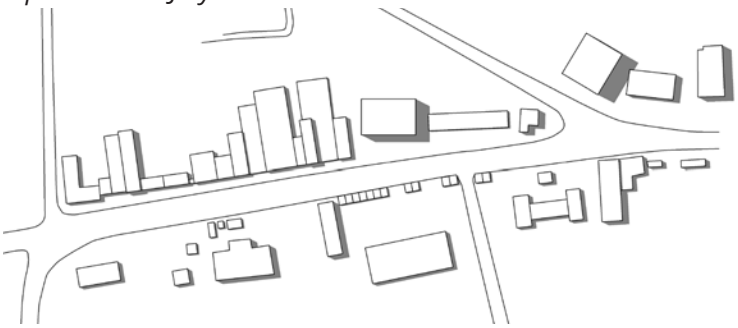
Recording the height of all the buildings on the stretch to get a sense of average heights helps to understand the massing and enclosure when coupled with ROW and whether the building's cast a shadow on the street thereby lending shade to the street users.

Sample mapping of shade patterns cast by buildings on a street through the day

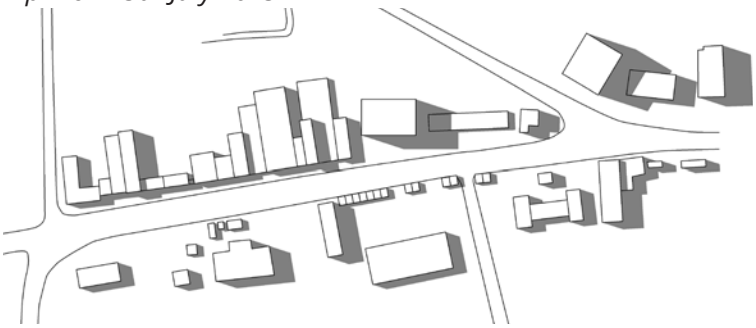
8 am on 19th July 2019

10 am on 19th July 2019

2 pm on 19th July 2019



4 pm on 19th July 2019



Planting

Showing the existing trees/ plants and the extent of canopy shading the street.

Sample mapping

Lighting

Mapping of existing street lights and their light cones and identifying if there are any blind spots between light poles. Light poles must be spaced at 2.5-3 times the height of the pole to avoid blind spots.

In some cases, light from private buildings may also light up the public realm. These are best checked at night.

Timesaver tip *Check for blind spots during the night*

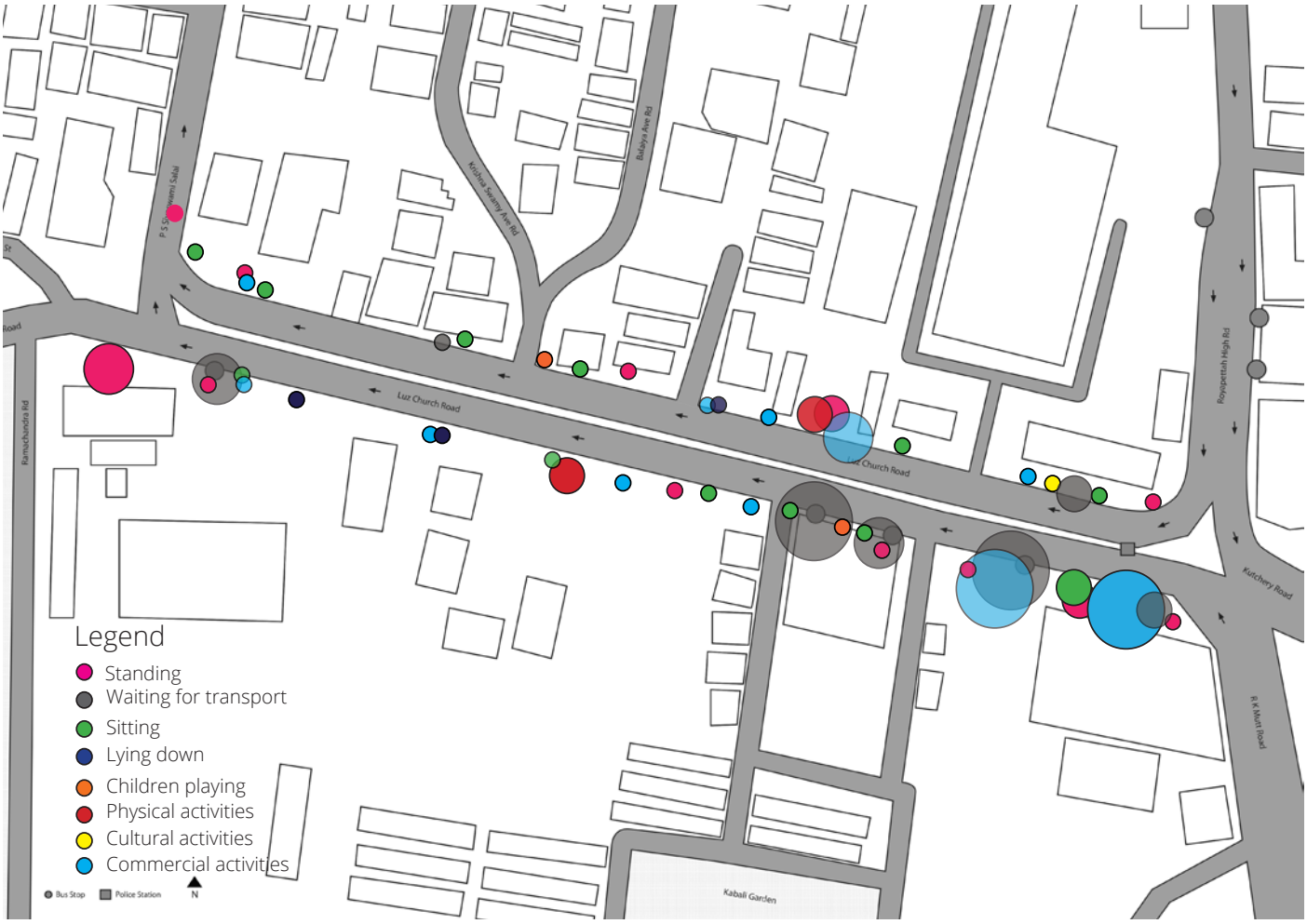
Sample mapping

Activity mapping

Identifying the different stationary activities on the selected stretch helps ascertain if these activities are adequately accommodated within the street ROW. Photography is a useful medium to record this mapping.

** Refer to activity mapping template in annexure.*

Sample mapping



0 - 5 People 5 - 10 People 10 - 25 People Above 25 People

Age & Gender mapping

Understanding the age and gender profile of users help to design appropriate responses to these profiles and possibly even introduce elements that can encourage those profiles which are not so prevalent.

** Refer age and gender mapping template in annexure.*

Sample mapping

At Town Hall Junction

		Male Senior Citizen	Male Adult	Male Child	Female Senior Citizen	Female Adult	Female Child
At 16:20	Towards Oppanakara Street	9	22	6	2	41	19
	Towards Railway Station	16	32	4	5	43	
At 12:50	Towards Oppanakara Street	8	31		11	50	
	Towards Railway Station	11	51	1	10	27	

At Clock Tower Junction

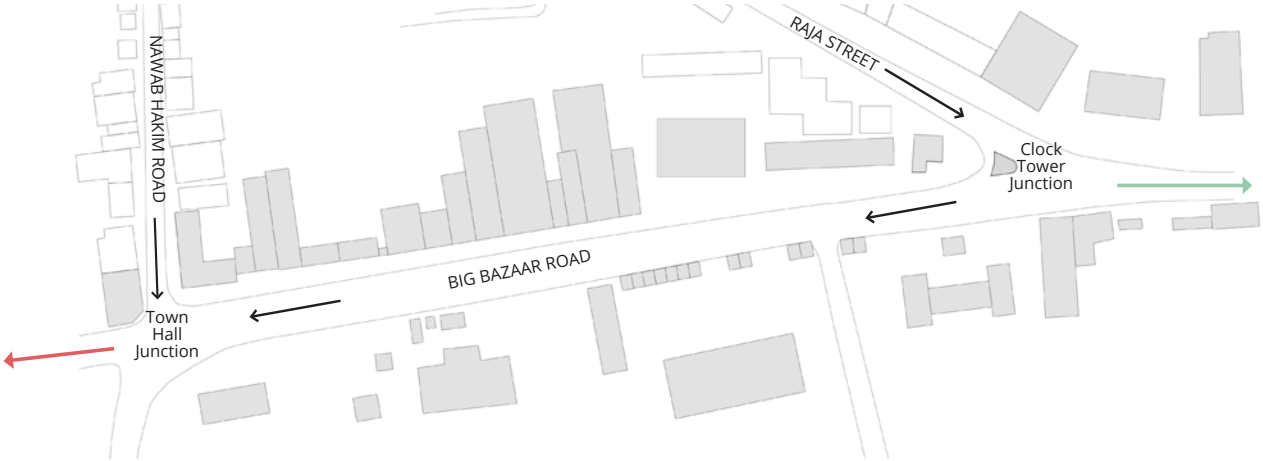
		Male Senior Citizen	Male Adult	Male Child	Female Senior Citizen	Female Adult	Female Child
At 16:10	Towards Oppanakara Street	17	25	7	15	40	6
	Towards Railway Station	7	41	1	3	48	
At 12:50	Towards Oppanakara Street	18	29	5	15	28	5
	Towards Railway Station	24	38		6	32	

Pedestrian Movement

Pedestrian counts and flows in both directions at hourly intervals during weekday and weekend.

**Refer to pedestrian count template in annexure*

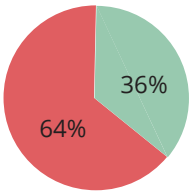
Sample mapping



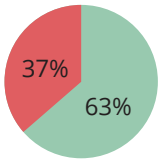
Towards Oppanakara Street

Towards Railway Station

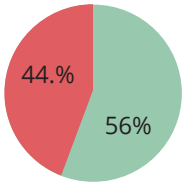
At Townhall junction



12:30 to 12:40
Total Count: 342

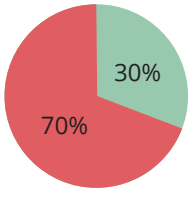


16:00 to 16:10
Total Count: 224

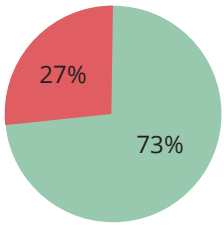


18:00 to 18:10
Total Count: 305

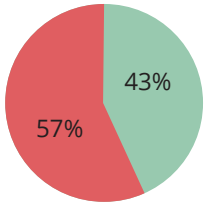
At Clock Tower junction



12:20 to 12:30
Total Count: 325



16:50 to 17:00
Total Count: 459



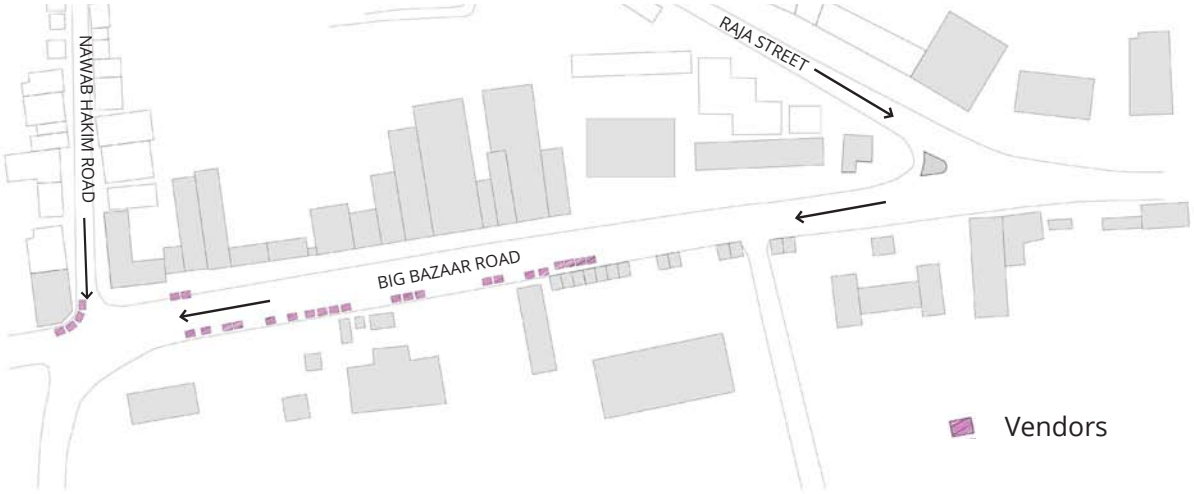
18:00 to 18:10
Total Count: 372

Vendor mapping

Map showing distribution/ clustering of vendors along the stretch; type of goods sold and type of vendor setup i.e. mobile, permanent, temporary; time and duration when they attract crowds

** Refer to vendor mapping template in annexure.*

Sample mapping

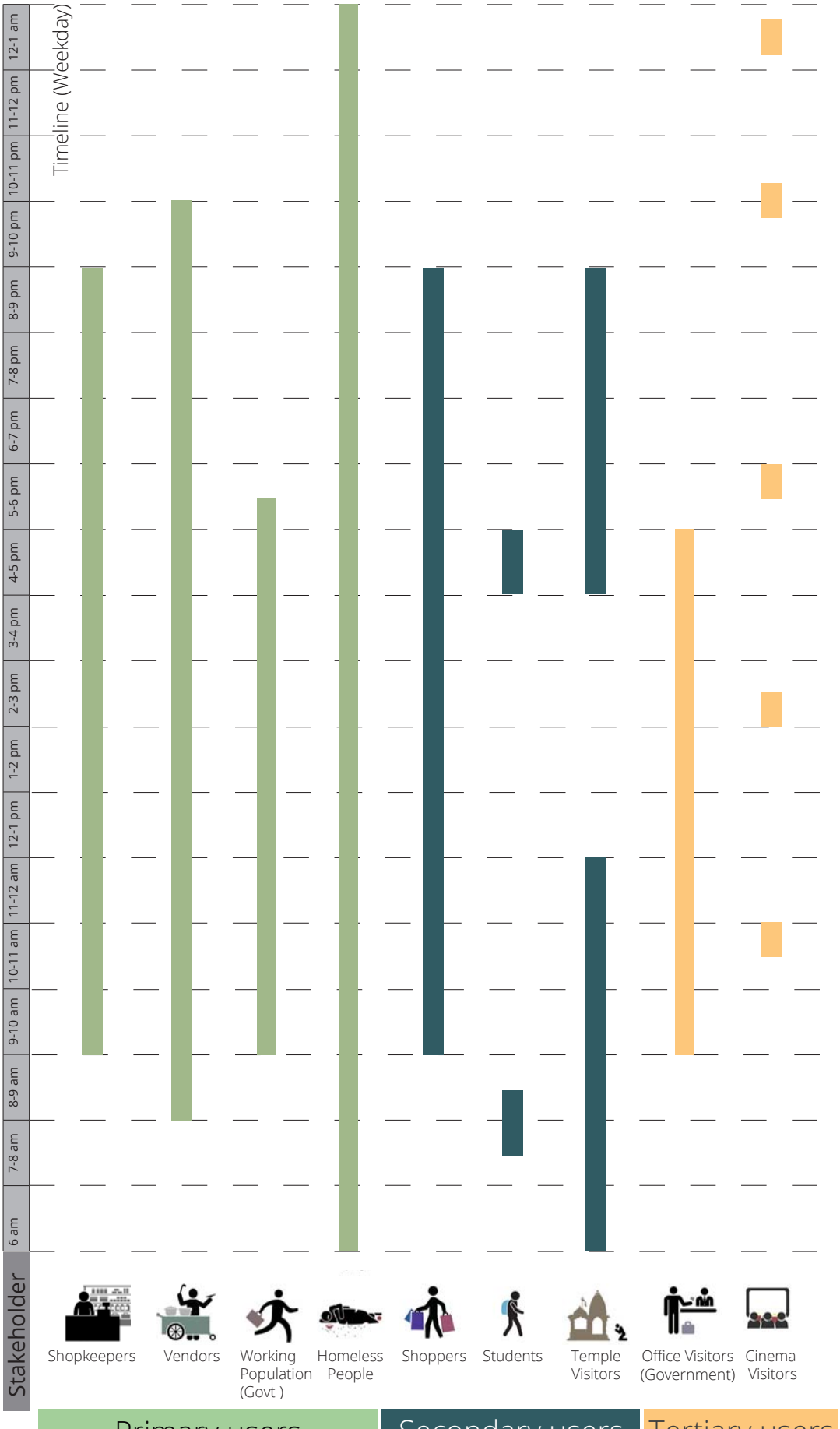


User group analysis

Identification of the various user groups based on purpose of visiting the stretch through the day and time spent by each user group

**Refer to user group analysis in annexure*

Sample mapping

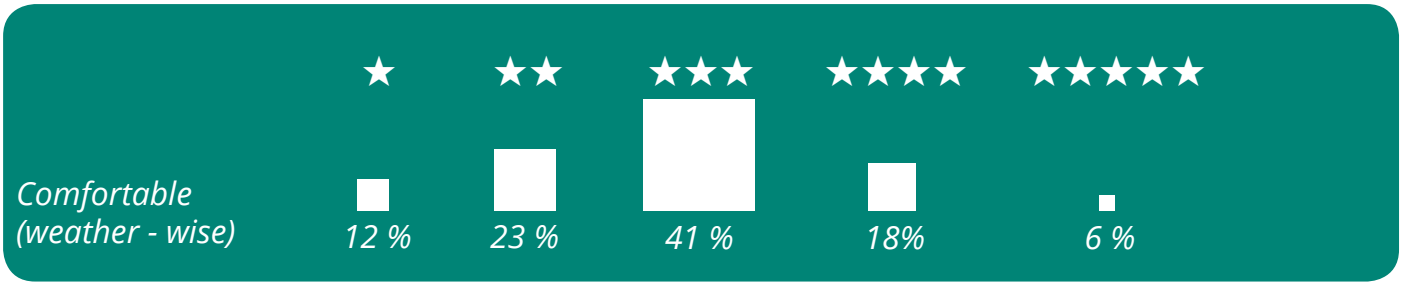


USER SURVEYS

Comfort (weather wise):

Is the walking path well shaded, comfortable to walk

Sample response data



Desired activities by users

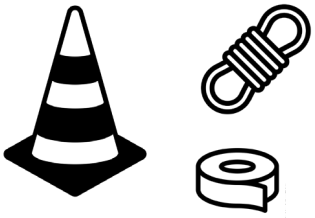
To understand the desired and undesired activities along the stretch

KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *What is the orientation of the street? East-west? North-South?*
- *What is the predominant height of buildings on this stretch?*
- *Do they cast shadow on the street during different times of the day?*
- *Is the street and particularly walking zone shaded by tree cover?*
- *Are there spots which are not shaded?*
- *What are the various activities on the stretch and what are the desired activities as per the stakeholders?*
- *Are there any specific elements such as seating, shading, play areas, garbage bins etc. that can be included as part of the design intervention to accommodate the activities currently on the stretch?*

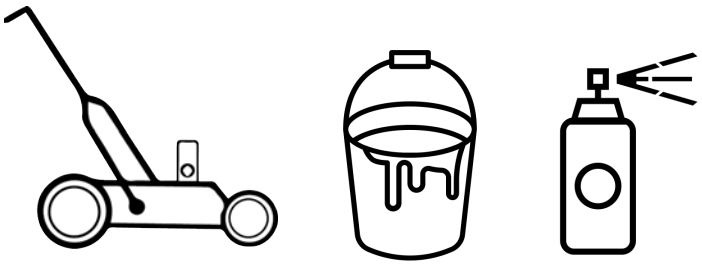
MATERIAL PALETTE FOR THIS THEMATIC INTERVENTION

1 *ROW Demarcation*



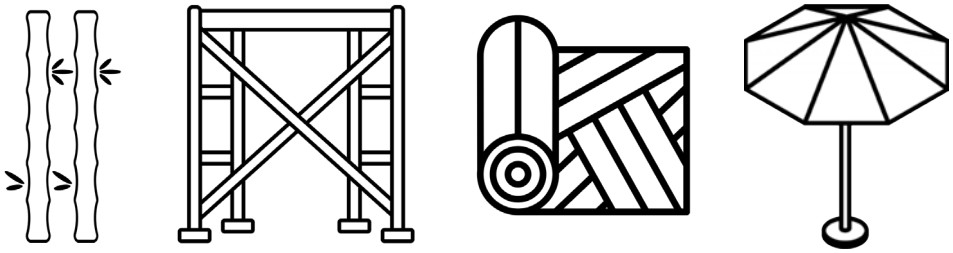
- Traffic cones
- Delineators
- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

2 *Surface Marking*



- Acrylic distemper paint
- Floor coat emulsion paint
- Water based epoxy paint
- Thermoplastic paint
- Spray paint

3 *Shade Structures*

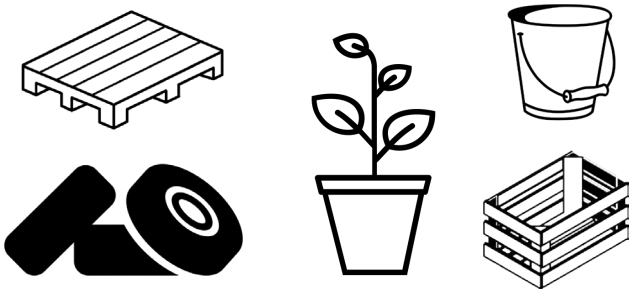


- GI/ Steel pipes
- Bamboo Poles
- Casuarina Poles
- Fabric
- Canvas
- Reed/ Cane mats

4 *Lighting*

- LED lights
- Bamboo Poles
- Casuarina Poles
- Serial Sets

5 *Seating/ Livability*



- Wooden Pallets
- Tyres
- Wooden Crates
- Buckets/ Used paint buckets
- Flower pots/ plants

WAYFINDING TO IMPROVE LEGIBILITY

POSSIBLE DESIGN ELEMENTS

SIGN BOARDS

FLOOR SIGNAGE

TRAIL MARKINGS

REQUIRED DATA AND MAPPINGS

Existing signage

Mapping locations of existing signage and information conveyed through these signages. If there are any missing signages, these can be captured temporarily through the tactical urbanism project.

Additionally, it may be required to place new signage highlighting the design elements that are added during the tactical urbanism project. Knowing where the existing signage is will help avoid conflict with these and the new signages.

Sample mapping showing location and type of existing signage

USER SURVEYS

Efficacy of existing signage and need for new signage

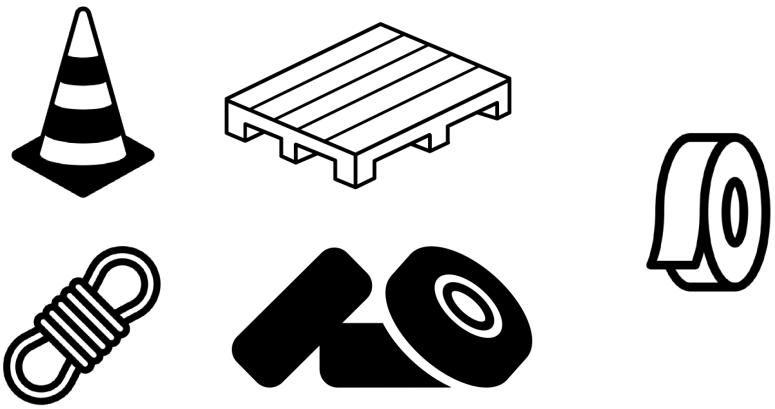
Asking users questions related to the ease of wayfinding will help determine gaps in signage along the stretch.

KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *Do we need to provide additional signage to guide pedestrians and vehicles based on the redesigned ROW?*
- *WIll this clash with any existing signage?*
- *Where can we place these new signages?*

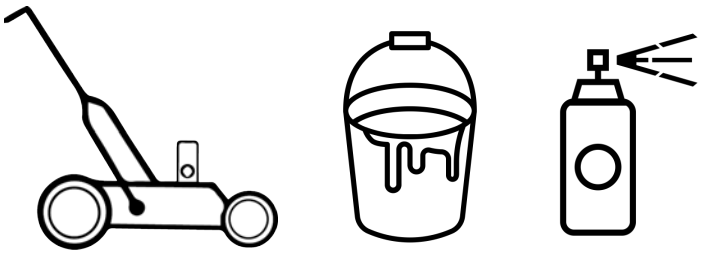
MATERIAL PALETTE FOR THIS THEMATIC INTERVENTION

1 *ROW Demarcation*



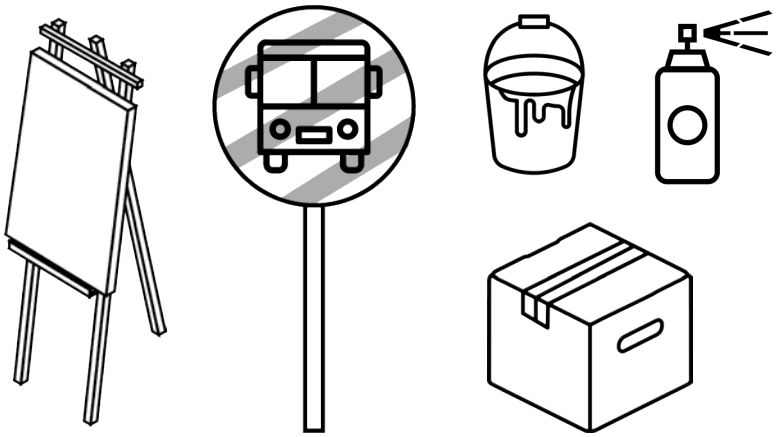
- Traffic cones
- Delineators
- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

2 *Surface Marking*



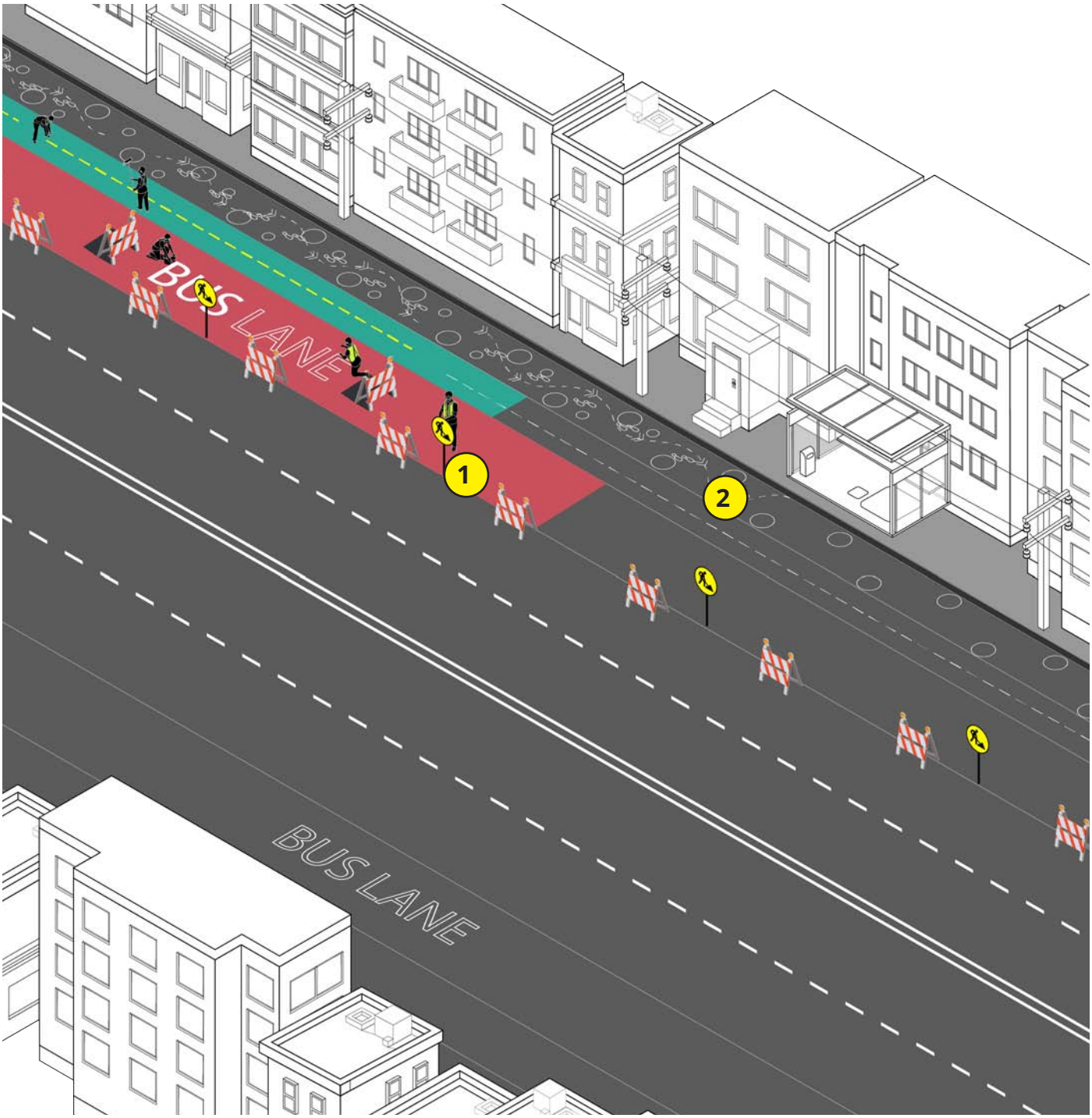
- Acrylic distemper paint
- Floor coat emulsion paint
- Water based epoxy paint
- Thermoplastic paint
- Spray paint
- Aerosol line marking machine

3 *Signage*

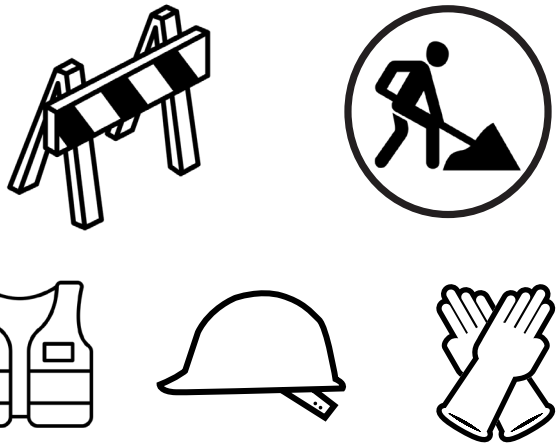


- Acrylic distemper paint
- Thermoplastic paint
- Spray paint
- Reflective boards
- Easels
- Mill board/ MDF board
- Cardboard

GENERAL SET OF EQUIPMENT REQUIRED FOR ON-SITE EXECUTION

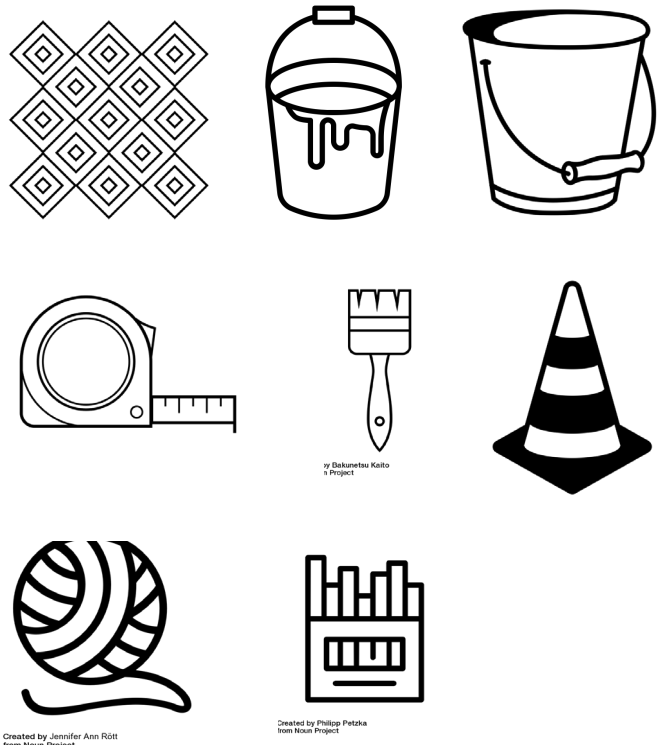


1 *Safety equipment*



- Traffic cones/ barricades/ delineators
- Safety signage
- Safety vests
- Helmets
- Gloves

2 *Tools utilised for marking*



- Chalk
- Yarn
- Measuring tape
- Paint brushes/ rollers
- Floor coat emulsion paint
- Buckets/ Mugs
- Stencils
- Thinner/ Turpentine
- Waste cloth
- Stencils
- L-angle
- Aluminium box sections

ANNEXURES

MAPPING TEMPLATES

- Age and Gender survey template
- Pedestrian count template
- Vehicular count template
- Parking count template
- User group analysis template
- Activity mapping template
- Vendor mapping template

SAMPLE STREET SECTIONS SHOWING PROPOSED TACTICAL URBANISM INTERVENTIONS

SAMPLE COST ESTIMATE FOR TACTICAL URBANISM

TACTICAL URBANISM IN INDIA

Case examples fact sheets

GLOSSARY OF TERMS

MAPPING TEMPLATES

AGE AND GENDER SURVEY

The age and gender survey can form an additional layer of information with the pedestrian counts to understand the social and demographic factors of space usage. It helps to provide a picture of who uses and moves through the city. The balance between different age groups and genders is an indicator of the quality, safety and integration level of public spaces.

WHAT TO SURVEY?

The Age and Gender survey can be conducted by observing passing pedestrians, and for each person, noting down the gender (M/F) and approximate age group:

- Children 0-17
- Adults 18-60
- Seniors above 60

This survey will have to be done for a target number of 100 pedestrians, say 100, rather than a target time of 10 minutes. It is not necessary to capture every single pedestrian passing by, rather a total of 100 registrations within a time of 20 – 25 minutes need to be captured to provide a useful snapshot.

MC - Male child
MA - Male adult
MS - Male senior citizen
FC - Female child
FA - Female adult
FS - Female senior citizen

WHEN TO SURVEY?

This survey can be repeated four times a day, in sync with the morning and evening peak hours and lunchtime.

AGE AND GENDER SURVEY

Location		Surveyor Name	
Date		Note	

This survey was conducted on ☐ a weekday ☐ a weekend

TIME	01	02	03	04	05	06	07	08	09	10
8 AM										
12 noon										
4 PM										
7 PM										

CALCULATIONS

MC	
MA	
MS	
FC	
FA	
FS	
TOTAL	

MC	
MA	
MS	
FC	
FA	
FS	
TOTAL	

MC	
MA	
MS	
FC	
FA	
FS	
TOTAL	

MC	
MA	
MS	
FC	
FA	
FS	
TOTAL	

legend - M - Male, F - Female, C - Child (0-17), A - Adult (18-60), S - Senior (above 60)

PEDESTRIAN COUNT

Pedestrian counts are useful in understanding the volumes and patterns of usage of the public realm across the site area / neighbourhood / city district. When collated, the data on number of people walking in the city can provide valuable insights on what places work well for pedestrian occupation, and factors that contribute to lively use of the public realm despite poor infrastructure or environmental quality.

The pedestrian environment audit again provides the framework for counting pedestrian activity. The following pointers will be useful in executing the pedestrian counting activity.

WHOM TO COUNT?

1. Count all pedestrians walking in each direction.
2. Count children, as well as children carried by their parents
3. Count people in wheelchairs and on rollerskates as pedestrians.
4. Count people riding bicycles separately, as their own category

WHEN TO COUNT?

1. You will need to take a pedestrian count for 10 minutes in every hour at each of the selected locations. This can then be extrapolated to an hourly count by multiplying by 6
2. Ideally, counts spanning every hour from 7 am to 11 pm would be useful to understand the ebbs and flows in activity. If this is not practical, aim to capture atleast 2 hours of counts each in the morning and evening during rush hours and an additional 2 hours around lunch time (totally 6 hours of counts)

THINGS TO REMEMBER:

1. If you are using a counter/ clicker , reset to zero before each count
2. Count for exactly 10 minutes every hour. Use a stopwatch to monitor if necessary
3. Carry an official letter from the concerned authorities at all times during surveying

PEDESTRIAN COUNT

Location		Surveyor Name	
Date		Note	

This survey was conducted on ☐ a weekday ☐ a weekend

TIME	NO. OF PEDESTRIANS		NOTES
	Direction 1	Direction 2	
07.00 - 07.10			
08.00 - 08.10			
09.00 - 09.10			
10.00 - 10.10			
11.00 - 11.10			
12.00 - 12.10			
13.00 - 13.10			
14.00 - 14.10			
15.00 - 15.10			
16.00 - 16.10			
17.00 - 17.10			
18.00 - 18.10			
19.00 - 19.10			
20.00 - 20.10			
21.00 - 21.10			
22.00 - 22.10			
23.00 - 23.10			

VEHICULAR COUNT

Vehicular counts helps in understanding the nature and volume of the floating population, traffic pattern and density in the stretch / site area. Data obtained from documenting the number of vehicles crossing a particular point at various time intervals can be compared with the standards to determine the width of the carriage way at various sections of the stretch, giving more space for pedestrians.

The following pointers will be useful in executing the vehicular counting activity.

WHAT TO COUNT?

1. Count all vehicles in each direction.
2. Each vehicle category is counted and tabulated separately.

WHEN TO COUNT?

1. You will need to take a vehicular count for 10 minutes in every hour at each of the selected locations. This can then be extrapolated to an hourly count by multiplying by 6
2. Ideally, counts spanning every hour from 7 am to 11 pm would be useful to understand the ebbs and flows in activity. If this is not practical, aim to capture atleast 2 hours of counts each in the morning and evening during rush hours and an additional 2 hours around lunch time (totally 6 hours of counts)

THINGS TO REMEMBER:

1. If you are using a counter/ clicker , reset to zero before each count
2. Count for exactly 10 minutes every hour. Use a stopwatch to monitor if necessary
3. Carry an official letter from the concerned authorities at all times during surveying

VEHICULAR COUNT

Location		Surveyor Name	
Date		Note	

This survey was conducted on ☐ a weekday ☐ a weekend

TIME	CAR		TWO WHEELER		BUS		AUTO		SHARE AUTO		BICYCLE		LORRY	
	Direction													
	1	2	1	2	1	2	1	2	1	2	1	2	1	2
07.00 - 07.10														
08.00 - 08.10														
09.00 - 09.10														
10.00 - 10.10														
11.00 - 11.10														
12.00 - 12.10														
13.00 - 13.10														
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15.00 - 15.10														
16.00 - 16.10														
17.00 - 17.10														
18.00 - 18.10														
19.00 - 19.10														
20.00 - 20.10														
21.00 - 21.10														
22.00 - 22.10														
23.00 - 23.10														
TOTAL														

PARKING COUNT

Counting the vehicles parked along the stretch, gives information about the percentage of the road section used for parking. The number of vehicles parked at various instances at the same day helps in deducing the parking demand for the stretch, which can be considered while redisgning the stretch.

The following pointers will be useful in executing the parking counting activity.

WHAT TO COUNT?

1. Count all the vehicles parked in the stretch.
2. Count vehicles parked on either side of the road and tabulate them separately.
3. Count the service vehicles parked during the exercise. Service vehicles include supply vehicles, cleaning trucks etc.

WHEN TO COUNT?

1. You will need to take a parking count for every hour at each of the selected locations. This can then be extrapolated to an hourly count by multiplying by 6.
2. Ideally, counts spanning every hour from 7 am to 11 pm would be useful to understand the ebbs and flows in activity. If this is not practical, aim to capture atleast 2 hours of counts each in the morning and evening during rush hours and an additional 2 hours around lunch time (totally 6 hours of counts)

Additionally, parking patterns can be marked on a map to better understand, where the vehicles are parked with respect to the context. The mapping exercise can be done in a single go if the considered stretch is less than 500m. If more, the stretch can be demargated into different segments and the exercise is carried out for each segment.

MAP OF SITE / STUDY AREA

Use survey drawing. If not available, use google maps.

PARKING COUNT

Location		Surveyor Name	
Date		Note	

This survey was conducted on ☐ a weekday ☐ a weekend

TIME	CAR		TWO WHEELER		AUTO		BICYCLE		SERVICE VEHICLE	
	Side A	Side B	Side A	Side B	Side A	Side B	Side A	Side B	Side A	Side B
07.00 - 07.10										
08.00 - 08.10										
09.00 - 09.10										
10.00 - 10.10										
11.00 - 11.10										
12.00 - 12.10										
13.00 - 13.10										
14.00 - 14.10										
15.00 - 15.10										
16.00 - 16.10										
17.00 - 17.10										
18.00 - 18.10										
19.00 - 19.10										
20.00 - 20.10										
21.00 - 21.10										
22.00 - 22.10										
23.00 - 23.10										

TOTAL										

USER GROUP ANALYSIS

User group analysis is essential to understand the various stakeholders involved in the selected site area. This help in understanding the issues and needs of the various user groups, which can be translated into design considerations.

The following steps are to be followed in the user analysis:

1. List all the user groups involved in the site area based on their usage.
2. Categorize the users into primary, secondary and tertiary stakeholders based on the usage and amount of time they spend on the site.
3. Based on this categorisation, come up with means of engagement to understand the issues faced by each user groups and their needs.

SOME TYPICAL USER GROUP PROFILES

Pedestrians

School and college **students** from nearby institutions, **working population, religious institution visitors** and **shoppers** who use the street as well as transit users.

Motorists

Private vehicle drivers and **public transportation** drivers who frequently use the stretch as well as park the vehicles there.

Police Officers who guide the traffic at intersections and during the Tactical urbanism project.

Residents' Welfare Association (RWA) of nearby neighbourhoods.

Shopkeepers who own or work at shops in the stretch and temporory **street vendors** who keep tempory stalls/kiosks/vehicle stalls.

USER GROUP ANALYSIS

USER GROUP	6-7 AM	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 AM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	6-7 PM	7-8 PM	8-9 PM	9-10 PM	10-11 PM	11-12 PM	12-1 AM
01.																			
02.																			
03.																			
04.																			
05.																			
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ACTIVITY MAPPING

This survey is intended to create a snapshot of the activities in a public space at a given moment. Walk through the space, look ahead of you and map the activities you are passing on your way. Do not turn around or double back. Mark each of the people on the map in the right location, and according to the legend to specify activity type.

WHAT TO MAP?

1. People standing still – looking in at windows, street performers, talking etc.
2. People waiting for transport / traffic
3. People sitting
4. People lying down
5. Children playing
6. People doing physical activities like play, exercise etc. (not jogging or running)
7. People doing cultural activities – performances etc.
8. People doing commercial activities – hawkers, street vendors etc

Note - During the mapping exercise, only the stationary activities are to be mapped and people walking along the stretch are to be ignored. The above mentioned activities are some of the common activities in a public space and the surveyors need not restrict themselves to these activities.

WHEN TO MAP?

The stationary activities mapping should be done every hour in parallel with the pedestrian counts. Subject to size considerations, mapping stationary activities should take no more than 10 – 15 minutes every hour.

Similar to parking counts, the activity mapping exercise can be done in a single go if the considered stretch is less than 500m. If more, the stretch has to be demarcated into different segments and the exercise is to be carried out separately for each segment.

MAP OF SITE / STUDY AREA

Use survey drawing. If not available, use google maps.

ACTIVITY MAPPING

Location				Surveyor Name	
Date		Time		Note	

This survey was conducted on ☐ a weekday ☐ a weekend

ACTIVITY	SYMBOL	NUMBER
Standing	●	
Waiting for transport	○	
Sitting	■	
Lying down	□	
Children playing	×	
Physical Activities	⊠	
Cultural activities	▲	
Commercial activities	△	
Total		

VENDOR MAPPING

Vendors are an important aspect of street activity. Mapping the vendors in a stretch will give a holistic image of the various vendors operating in the zone and include them as part of the new proposal.

WHAT TO MAP?

1. Only the street vendors are to be marked. This does not include the commercial establishments along the stretch.
2. Document the type of shop - Permanent or Temporary, Movable or Immovable, etc.
3. Document the type of goods sold by the vendors.
4. Document the time period for which the vendor is present on the street
5. Also, document the time interval at which a particular vending activity is at its peak.
6. Document the number of vendors present at a particular vending activity.

WHEN TO MAP?

The vending activities mapping should be done every hour in parallel with the pedestrian counts. Subject to size considerations, mapping stationary activities should take no more than 10 – 15 minutes every hour.

The vendors mapping exercise can be done in a single go if the considered stretch is less than 500m. If more, the stretch has to be demarcated into different segments and the exercise is to be carried out separately for each segment.

MAP OF SITE / STUDY AREA

Use survey drawing. If not available, use google maps.

VENDOR MAPPING

Location				Surveyor Name	
Date		Time		Note	

This survey was conducted on ☐ a weekday ☐ a weekend

ACTIVITY	SYMBOL	TYPE OF SHOP	TYPE OF GOODS	TIME DURATION	PEAK TIME INTERVAL	NUMBER OF PEOPLE
Total						

SAMPLE STREET SECTIONS SHOWING PROPOSED TACTICAL URBANISM INTERVENTIONS

18 METRE RIGHT OF WAY

18M ROW *EXISTING SECTION*

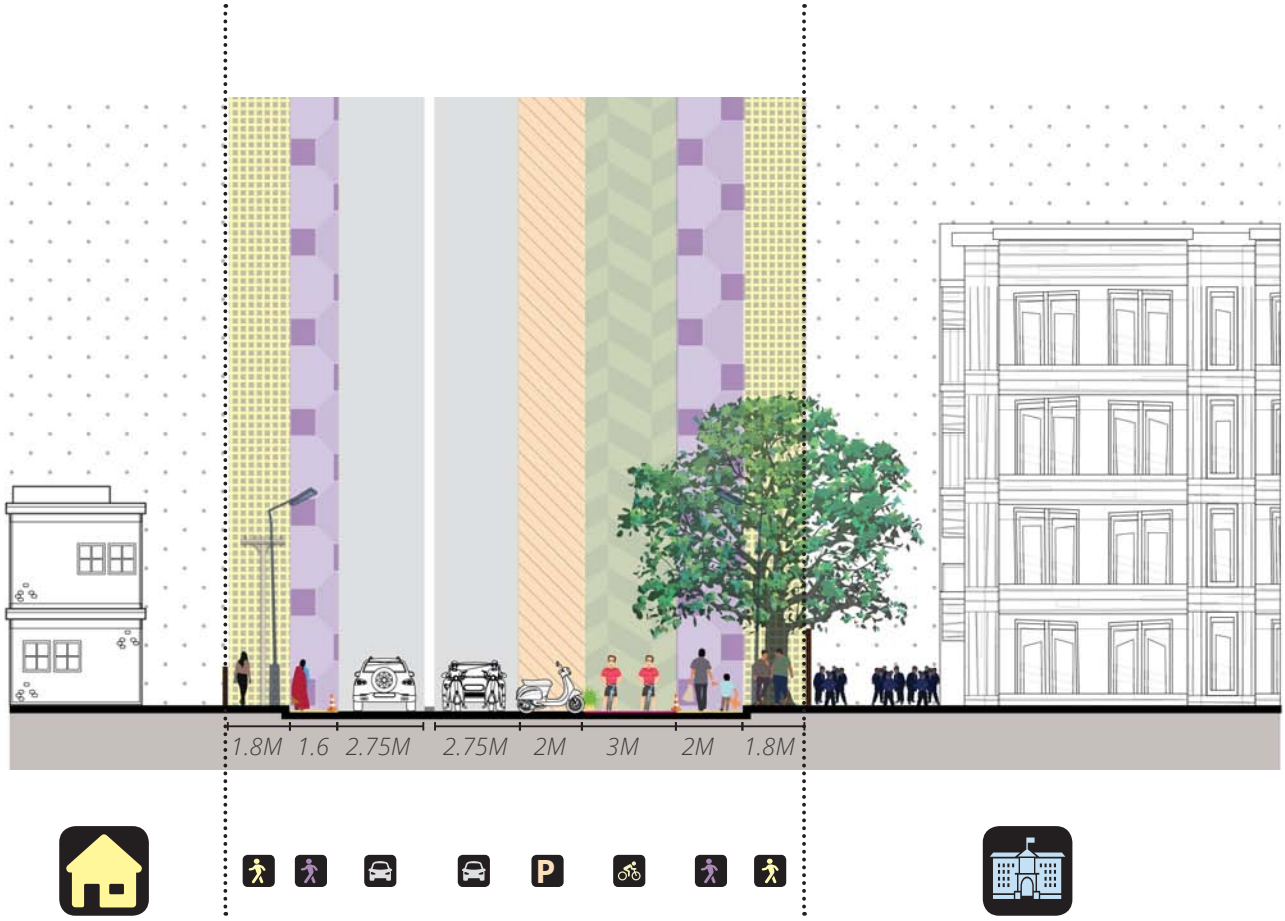
Existing Sidewalk

Proposed Sidewalk

Cycle lanes

Carriage way

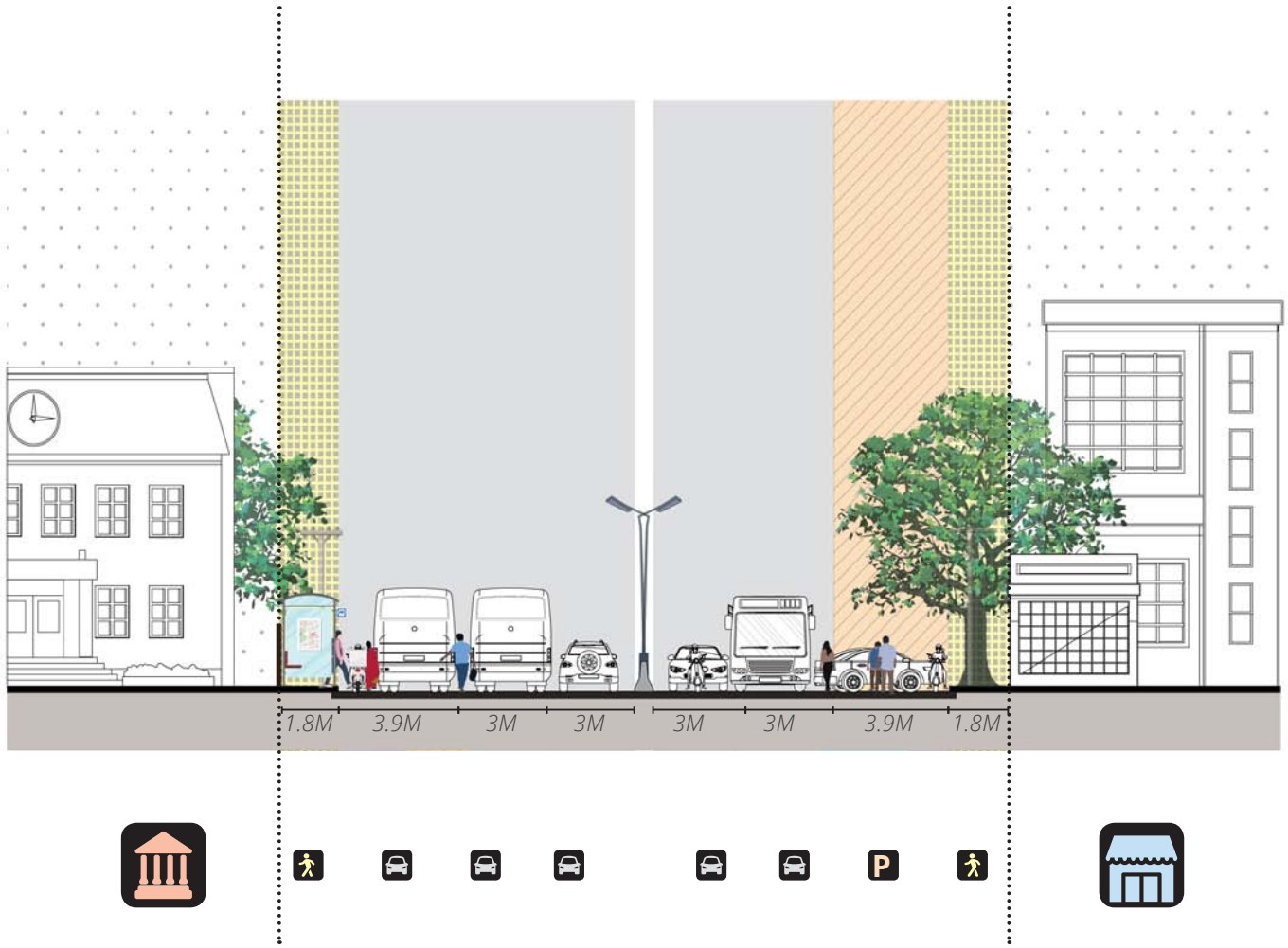
Parking Lane



18M ROW *PROPOSED SECTION - I*

18M ROW *PROPOSED SECTION - II*

24 METRE RIGHT OF WAY



24M ROW *EXISTING SECTION*

Existing Sidewalk

Proposed Sidewalk

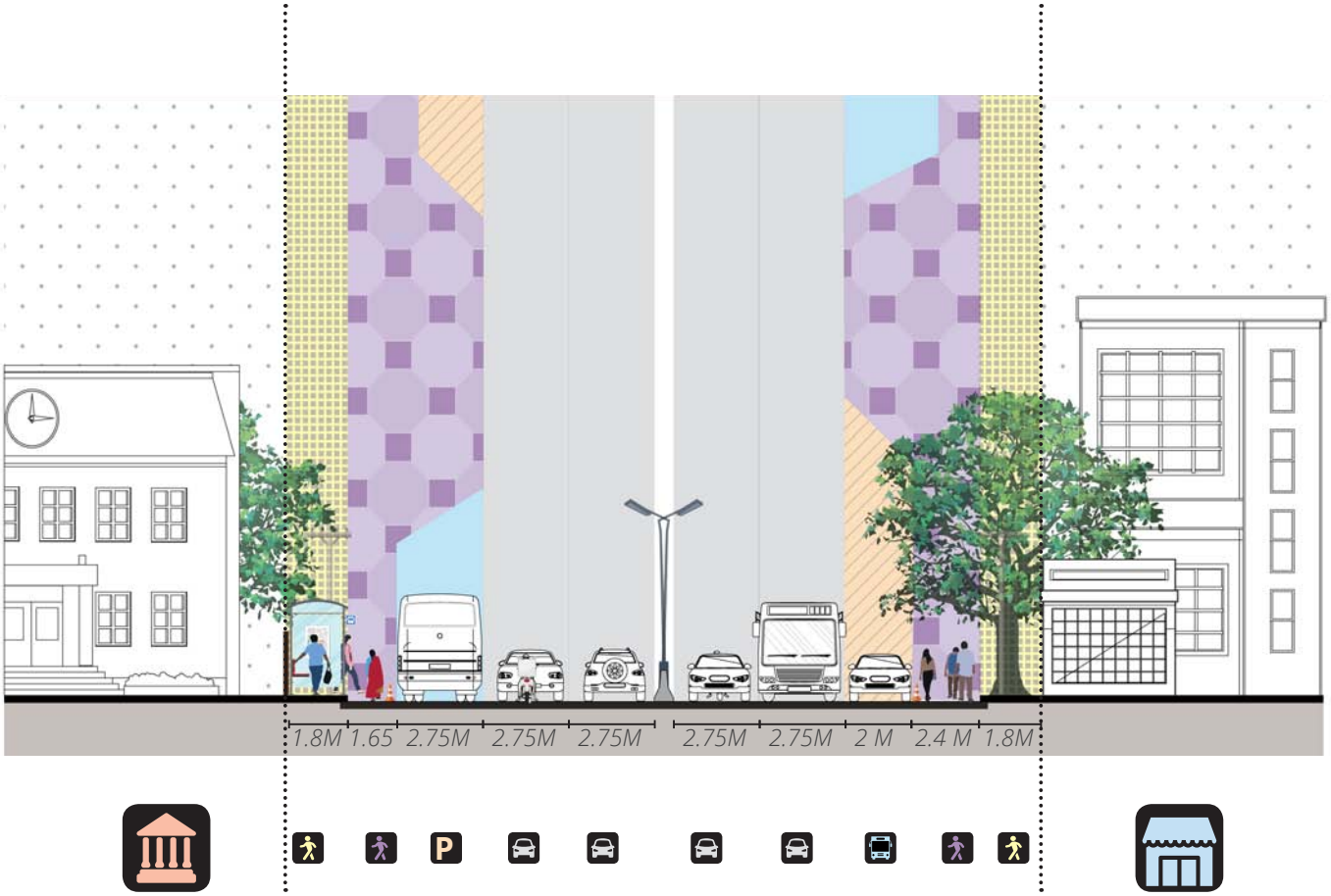
Cycle lanes

Bus bay

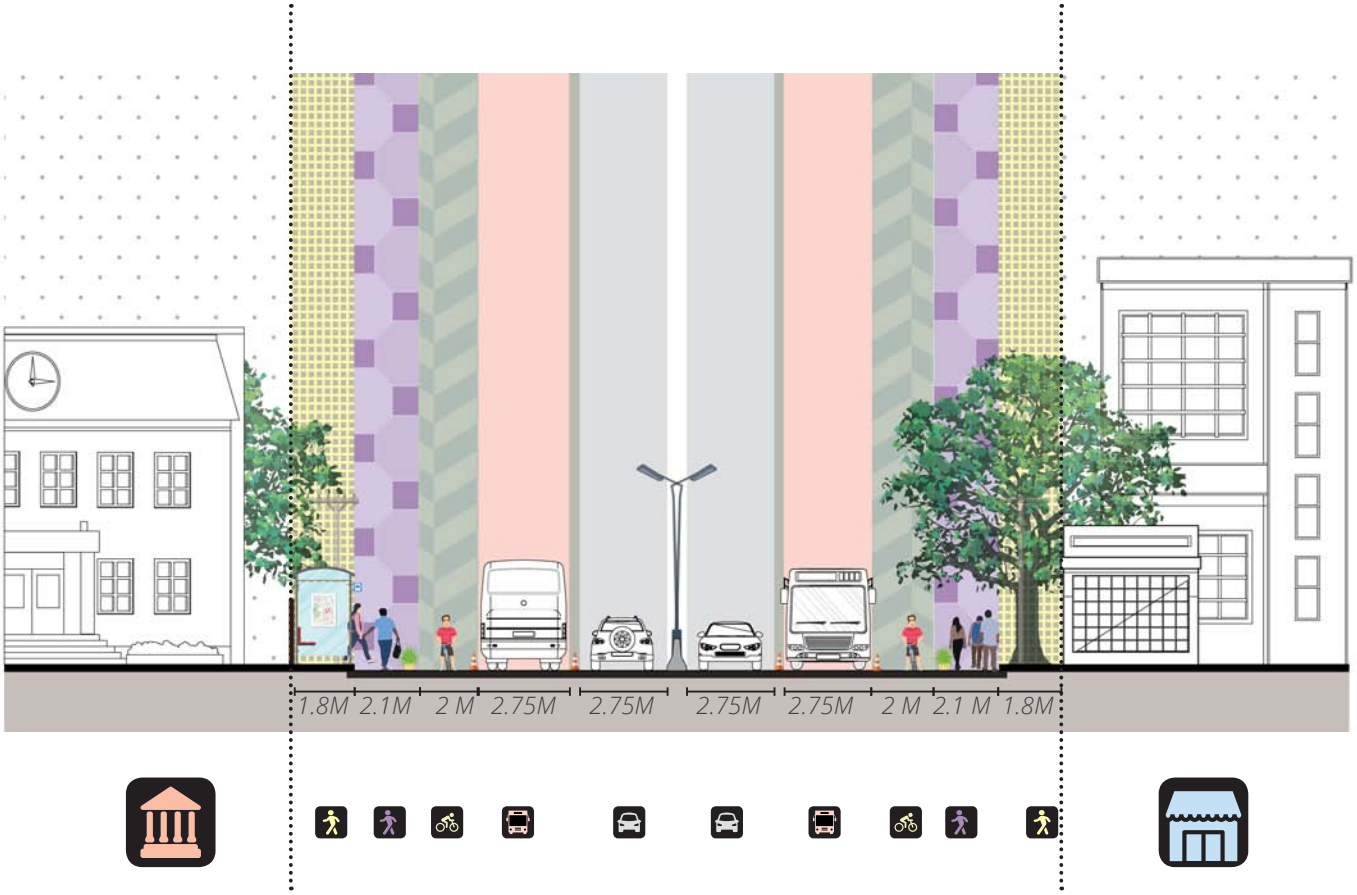
Carriage way

Parking Lane

Bus Lane

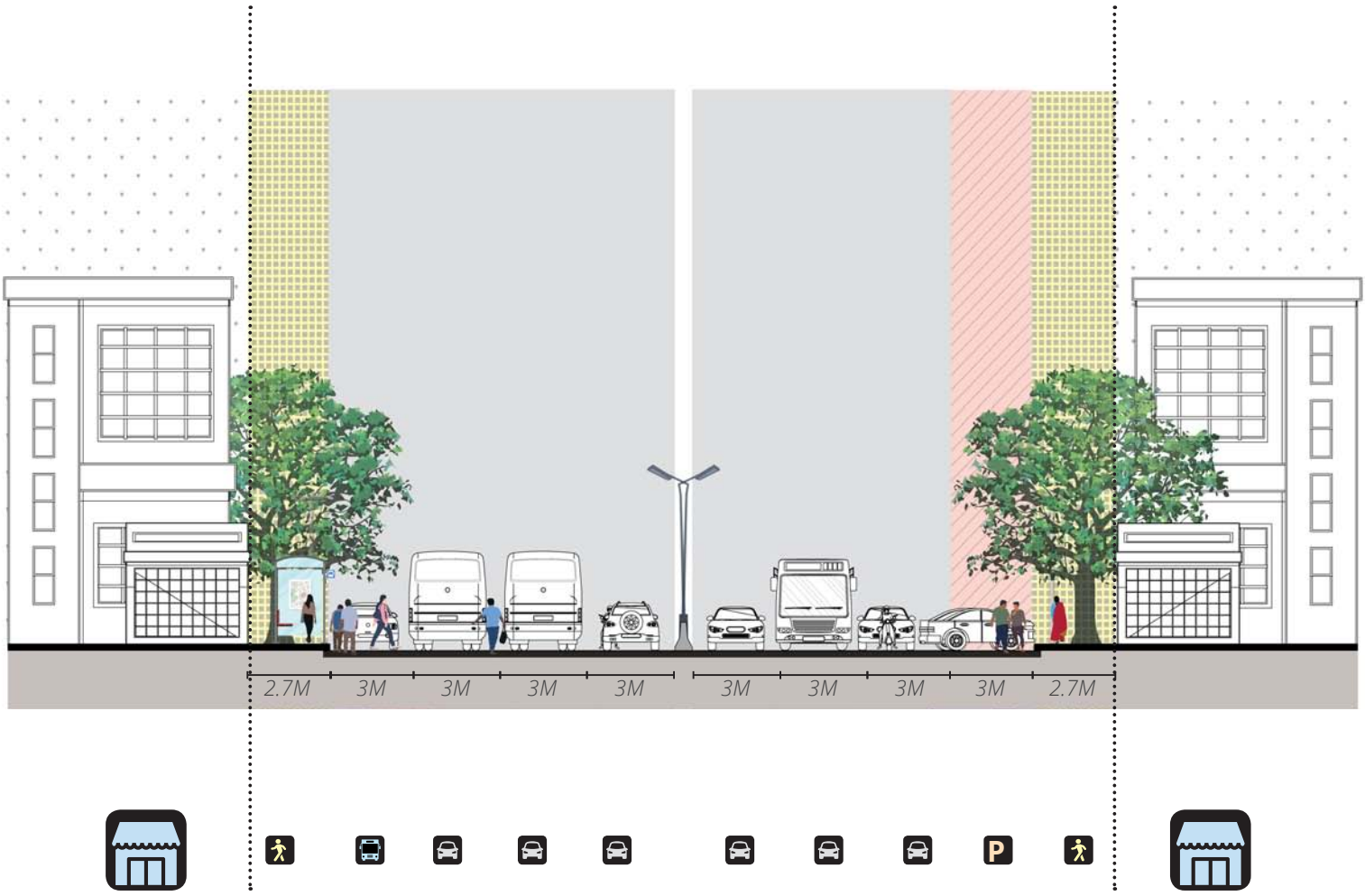


24M ROW *PROPOSED SECTION - I*



24M ROW *PROPOSED SECTION - II*

30 METRE RIGHT OF WAY



30M ROW *EXISTING SECTION*

Existing Sidewalk

Proposed Sidewalk

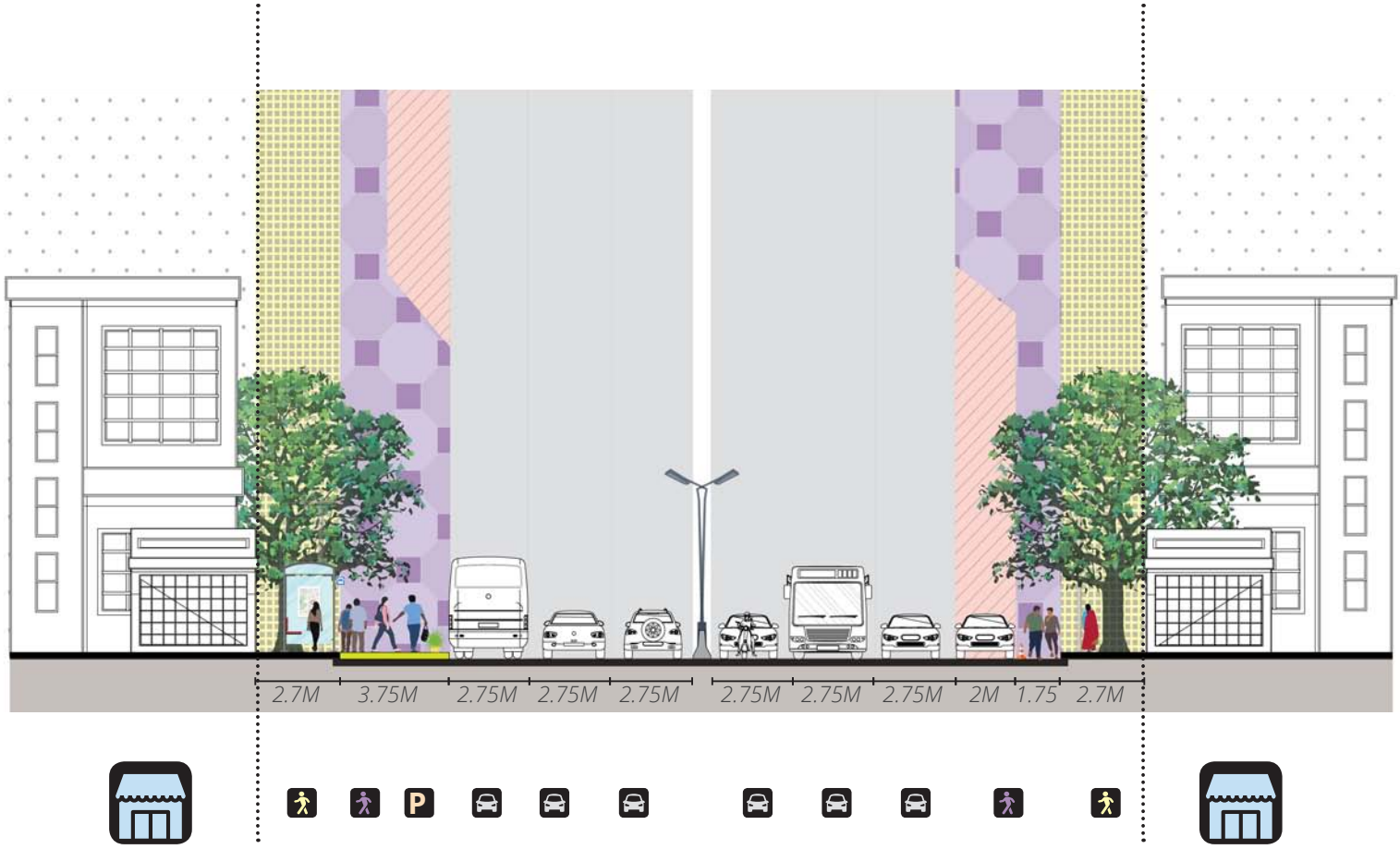
Cycle lanes

Bus bay

Carriage way

Parking Lane

Bus Lane



30M ROW *PROPOSED SECTION - I*

30M ROW *PROPOSED SECTION - II*

SAMPLE COST ESTIMATE FOR TACTICAL URBANISM

A rough per kilometre cost estimate for a tactical urbanism project assuming the bare minimum intervention for it to qualify as a tactical urbanism project - ***an extended sidewalk/ pop-up bike lane on both sides of the street*** - and assembled using cones, rope and thermoplastic paint would be as per the table below:

S. no.	*Particulars*	*Unit*	*Per unit cost*	*Units required per kilometre*	*Cost estimate per kilometre*
1	Cones	Nos.	INR 180-300	1000	INR 1,80,000 to 3,00,000
2	Nylon heavy duty rope	Metres	INR 25-40	2000	INR 50,000 to 80,000
3	White thermoplastic paint applied with 1.6mm thickness	Kg	INR 38- 70	800	INR 30,400 to 56,000
	Total				**INR 2,60,400 to 4,36,000**

Note: Rates are as per market values for the year 2020 and may vary in each city/ state.

TACTICAL URBANISM IN INDIA

Case example factsheets

Coimbatore, Tamil Nadu

Big Bazaar Street

November 2019

15,00,000

TYPE OF INTERVENTION

- Reducing carriageway width
- Intersection redesign
- Adding pedestrian crossing points
- Seating and shade structures
- Games for children on the sidewalk

STREET CONDITIONS ADDRESSED

- Inadequate pedestrian infrastructure
- Lack of shading and seating
- Irregular street parking
- Varying carriageway widths along the street

Coimbatore City Municipal Corporation, Coimbatore Traffic Police, GIZ India, GFA Consulting Group, Urban Design Collective, Eventia, Residents Awareness Association of Coimbatore (RAAC)

Udaipur, Rajasthan

Outside Vidhyabhawan Pre-Primary School

October 2019

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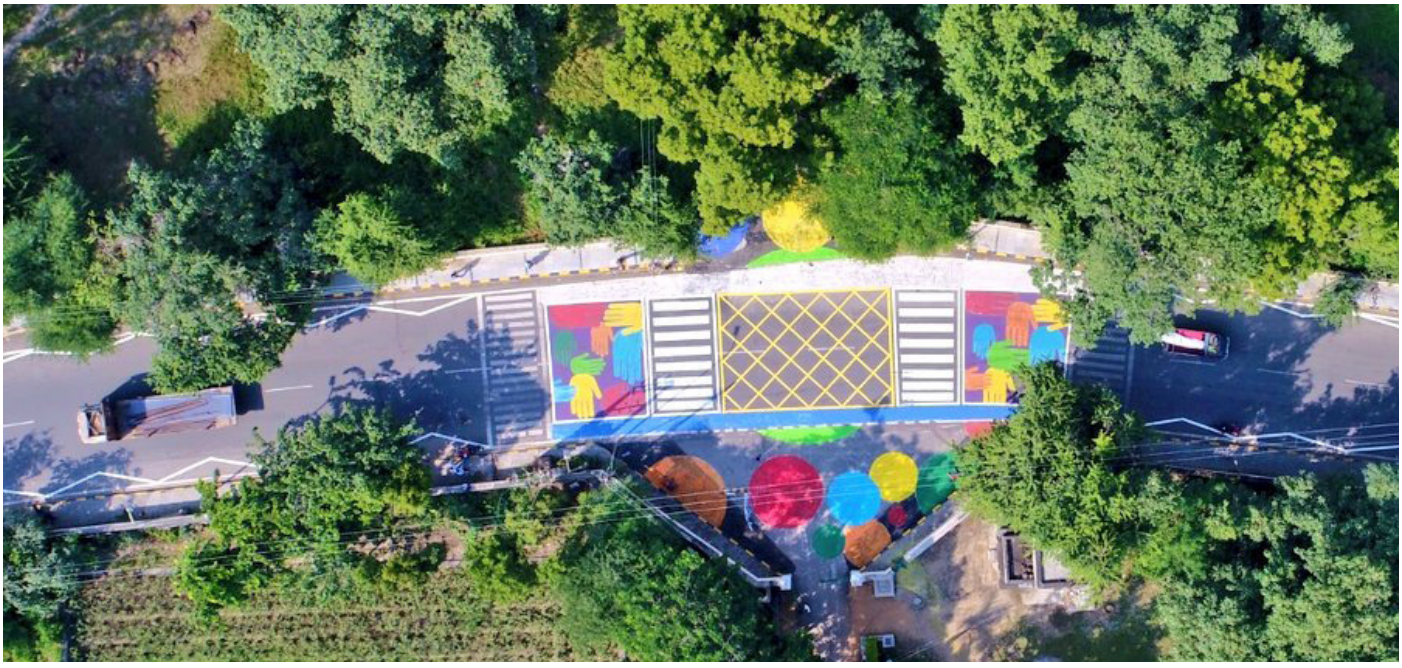
Source: Yougal Tak, ICLEI
https://udaipurtimes.com/administration/implementation-begins-first-tactical-intervention-under/c74416-w2859-cid170496-s10702.htm

TYPE OF INTERVENTION

- Reducing Vehicular Speed
- Child friendly pedestrian crossing
- Reducing carriageways for pedestrian safety

STREET CONDITIONS ADDRESSED

- Inadequate pedestrian infrastructure
- Lack of road safety for children



Bernard Van Leer Foundation, ICLEI South Asia, Udaipur Muncipal Corporation, Vidhya Bhawan College, Udaipur

Ranchi, Jharkhand

M.G Road, Ranchi

September 2019

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Source: https://www.itdp.in/tag/tactical-urbanism/

TYPE OF INTERVENTION

- Reducing carriageway
- Clear division for pedestrians and vehicular movement
- Pedestrian Safety
- Reducing traffic congestion

STREET CONDITIONS ADDRESSED

- Traffic congestion due to mixed use of road by pedestrians and vehicles
- Lack of pedestrian space and infrastructure
- Irregular Parking and Carriageway
- Pedestrian Safety

Ranchi Municipal Corporation, Ranchi Traffic Police, ITDP India Programme

Rohtak, Haryana

Bus Stand Road and Stadium Road Intersection

February 2019

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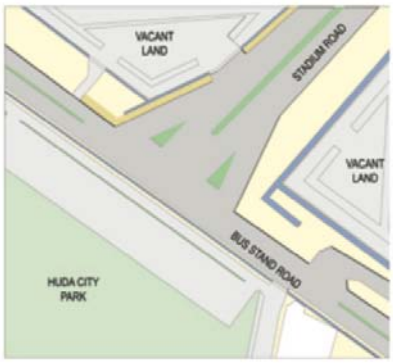
Existing Design



Proposed Design

Source: https://wri-india.org/blog/creating-safer-child-friendly-streets

TYPE OF INTERVENTION

- Reducing carriageway
- Reducing pedestrian crossing widths
- Creating refuge islands for pedestrians along the medians
- Reducing vehicular speeds

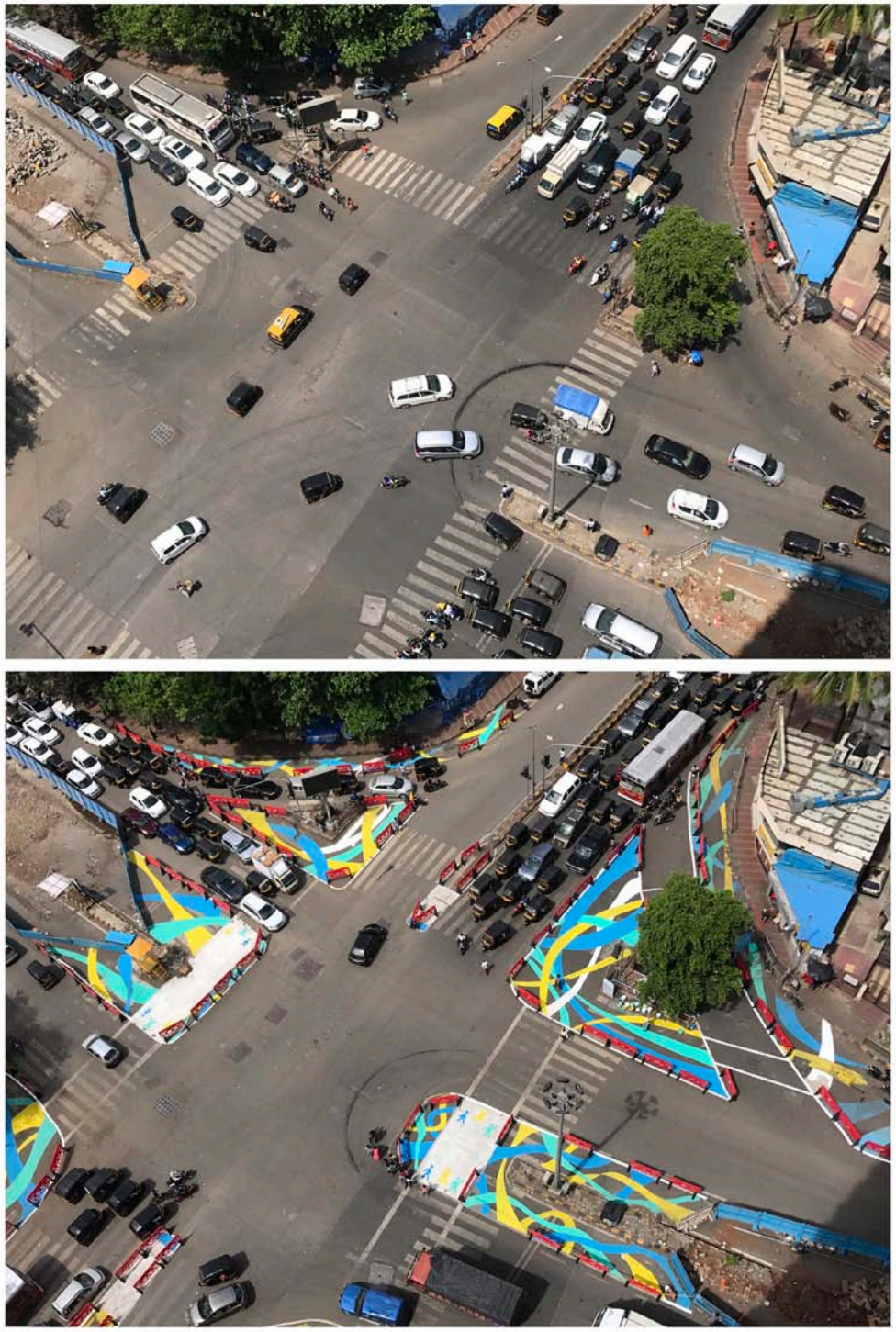
STREET CONDITIONS ADDRESSED

- Excessive carriageway widths
- Lack of road safety for children
- Speeding
- Lack of pedestrian infrastructure
- Irregular usage of ROW excess - such as drop off points, parking.

Municipal Corporation of Rohtak, Rohtak Police, WRI India, NASSCOM foundation

Mumbai, Maharashtra

Mithchowki, Malad



Source: https://globaldesigningcities.org/2018/05/31/making-mumbai-streets-safer-and-cooler-2/

May 2017

₹ xxxxxxx

TYPE OF INTERVENTION

- Curb extension
- Narrowing of free turning lanes
- Tightening corner radii to reduce speeding
- Shortening pedestrian crossings
- Lane alignment

STREET CONDITIONS ADDRESSED

- Inadequate pedestrian infrastructure
- Lack of road safety for pedestrians,
- Unutilized road space
- Inconsistent carriage-way width

Municipal Corporation of Greater Mumbai (MCGM), Mumbai Traffic Control Branch (MTCB), NACTO - GDCI, Kamla Raheja Vidyanidhi Institute for Architecture

Mumbai, Maharashtra

HP junction

2017

xxxxxxx

TYPE OF INTERVENTION

- Tighter corner radii
- Improved pedestrian space
- Median refuge islands to shape the street geometry

STREET CONDITIONS ADDRESSED

- Large turning radii
- Lack of road safety for pedestrians
- Lack of pedestrian infrastructure

Photos by Saurabh Jain/WRI ; Source: https://wri-india.org/blog/how-tactical-urbanism-can-improve-road-safety

Municipal Corporation of Greater Mumbai (MCGM), Mumbai Traffic Police (MTP), WRI India and a coalition of 'street-fighters' under the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS).

GLOSSARY OF TERMS

Accessibility	The ease with which a building, place or facility can be reached by people and/or goods and services. Accessibility can be shown on a plan or described in terms of pedestrian and vehicle movements, walking distance from public transport, travel time or population distribution.
Active Edges/Frontages	Ground floor uses which accommodate activities and provide a level of interaction between pedestrians and the building uses including cafes/ restaurants, shops, library etc. Active frontages/edges increase casual surveillance and improve the vitality and safety of an area.
Amenity	Design, aesthetic or other features of a development (building or public space) that increase its marketability or usability to the public. Examples of amenities include: good architecture, open space, landscaping, street furniture, an outdoor amphitheater, public art etc.
Barrier-Free Design/ Universal design	Building and site design which is accessible to all people, regardless of age and abilities.
Block	The area bounded by a set of streets and undivided by any other significant streets carrying vehicular traffic. A block may be designed to be cut through by pedestrian thoroughfares.
Buffer	A strip of land identified on a site plan or by a zoning ordinance established to provide separation between land uses that are incompatible. Normally, the area is landscaped and kept as open space.
Building access	The entry / exit points of a building for pedestrians & vehicles
Building line	The line formed by the frontages of buildings along a street. The building line can be shown on a plan or section.
Building orientation	The positioning of the building on site with respect to the street and the cardinal directions.
Bulb-Out	Widened sidewalk areas at intersections or mid-block crossings, often in place of on-street parking, thereby narrowing the pedestrian crossing distance over a right-of-way.
Bus priority lane	A highway or street lane reserved primarily for buses, either all day or during specified periods. It may be used by other traffic under certain circumstances, such as making a right or left turn, or by taxis, motorcycles, or carpools that meet specific requirements described in the traffic laws of the specific jurisdiction. Bus priority lanes reduce travel time and improve the quality and reliability of bus commute
Circulation	Movement patterns of people and goods. Includes pedestrians, cyclists, vehicular traffic, transit systems and freight.

Eyes on the street	People whose presence in adjacent buildings or on the street make it feel safer. Jane Jacobs' refers to the 'eyes on the street' concept in her book, The Death and Life of Great American Cities (1961) in the chapter where she discusses safety and the sidewalk. She notes that 'there must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street'.
Footpath	Is defined by the area between the kerb and the property boundary used to support pedestrian movement along the street. Footpaths in some locations can support activities such as footpath dining. Wider footpaths improve pedestrian amenities, ease of movement and connectivity by allowing the provision of street furniture, shade trees and landscaping.
Frontage	The width of a single lot, measured parallel to the right-of-way.
Frontage zone	The area adjacent to the property line where transitions between the public sidewalk and the space within buildings occur. (also dead width)
Landmark	buildings, structures and spaces which create distinct visual orientation points that provide a sense of location to the observer within the neighbourhood or district, such as that created by a significant natural feature or by an architectural form which is highly distinctive relative to its surrounding environment
Mapping	Technique used for communicating information about the physical environment. Maps may represent physical features such as land and climate conditions or abstract concepts such as view corridors and pedestrian nodes.
Mid-Block Connections	Linkages between two streets with the purpose of breaking up large blocks. The new connection provides an alternative way to the footpath/street grid and can be either a road or a pathway. It improves connectivity and accessibility through a precinct by adding to the choice of routes. They should ideally be designed to have uses other than as mid-block pedestrian links e.g. laneway or library/gallery galleria.
Mixed Use	A mix of uses within a building, or a site, or within a particular area, possibly including employment, residential, commercial, live/work, or retail. As an example, mixed use development can have shops on the ground floor with residential apartments above (vertical mix) or an office next to a residential apartment building within the same development (horizontal mix).
Modal Split	How the total number of trips in an area or to a destination is split between different means of transport, such as train, bus, car, walking and cycling. A change in modal split is referred to as modal shift and multi-modal refers to several different means of transport.

Node	A place where activity and routes are concentrated; a point of interchange in a transport network. Kevin Lynch defines nodes as 'points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is travelling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one structure to another. Or the nodes may simply be concentrations, which gain their importance from being the condensation of some use or physical character, as a street-corner hangout or an enclosed square'. (also hotspot)
Para transit	Forms of transportation services that are more flexible and personalized than conventional fixed-route, fixed-schedule service. The vehicles are usually low- or medium-capacity vehicles, and the service offered is adjustable in various degrees to individual users' desires. Its categories are public, which is available to any user who pays a pre-determined fare (e.g., autos, share autos) and semi-public, which is available only to people of a certain group, such as the elderly, employees of a company, or residents of a neighbourhood (e.g., vanpools, subscription buses). These services are usually informal and oftentimes fill the gaps in the public transport network.
Parking demand	Refers to the amount of parking that is estimated to be used at a particular time, place, and price.
Pedestrian	All people on foot or moving at walking speed, including those who use mobility aids (wheelchairs, scooters, etc.), persons with strollers and buggies, and frail elderly persons.
Pedshed	The area within a 10-minute walk band around a train station. Pedsheds are ideal locations for relatively dense housing development.
Place-making	Placemaking involves the planning, design, management and programming of public spaces. It addresses how we collectively shape our public realm to maximize shared value. Placemaking facilitates creative patterns of activities and connections (cultural, economic, social, ecological) that define a place and support its ongoing evolution. Placemaking is rooted in community-based participation and in concerned with building both the settlement patterns and the communal capacity for people to thrive with each other and our natural world.
Plaza	A community gathering space, sometimes called a square, usually designed with seating areas, and with a variety of ground-plane finishes such as hard-surfaces, lawn and landscaping. It is often designed as a focal point with an amenity such as a fountain, and it may be bounded on one or more sides by a civic or commercial use in the neighborhood or commercial center.
Precinct	An urban quarter; a distinct local area; an area with a defined boundary.

Primary Streets	Active for all modes of transport, but have less vehicular traffic than do avenues, so they are the most balanced streets downtown. Used to move people within the downtown.
Public Art	Site specific artwork created to enhance and animate publicly accessible spaces through artistic interpretations that range from individual sculpture to integrated architectural and landscape features and treatments.
Public Realm	The public and semi-public spaces of the city, especially the street spaces of the city from building face to the opposite building face (including the façade, front yard, sidewalk and streets) and open space such as parks and squares. These spaces are available, without charge, for everyone to use or see and are also called the public domain.
Right-of-way (ROW)	That part of the street space including the space above and below the surface that is publicly owned and lies between the property lines. This space is generally established for the use of pedestrians, vehicles, or utilities.
Road hierarchy	A classification of roads and streets. Road hierarchy for highway engineers includes access roads, distributor roads, collector roads and arterial road according to their role in the network as carriers of traffic and to the volume of traffic they can carry whereas road hierarchy for urban designers includes mews, residential streets, high streets and boulevards according to their scale and to their role in relation to people on foot.
Spine	A street or streets along which a specific activity is concentrated.
Square	An urban space, landscaped or paved, and enclosed wholly or partly by buildings. Also referred to as a piazza, quadrangle, courtyard or plaza.
Stakeholder	A stakeholder is any person, organization, institution, social group, or society at large that has a stake of a particular space
Street furniture	A collective term for the various elements installed on streets and roads. It includes seating, bollards, bus shelters, fountains, signage, light fixtures, fire hydrants, telephones, trash receptacles, mailboxes, newspaper boxes, kiosks.etc. all of which contribute to the street scene.
Street reclaiming	Reusing the space saved through reduced car use to enhance the social, cultural and economic life of a neighbourhood.
Streetscape	The distinguishing elements and character of a particular street as created by its width, degree of curvature, paving materials, design of the street furniture, pedestrian amenities and setback and form of surrounding buildings.

Traffic claming	Measures to reduce the speed of motor traffic, particularly in residential areas. They include education, enforcement and engineering (the three Es).
Transit	A system of conveyance (typically bus, train or tram) provided collectively- by the public sector or the private sector, or a mixture of the two.
User group	The different group of people who use the space
Visual preference survey	A technique, patented by the American urban designer Anton Nelesson, that involves showing people slides of places and asking them to rate them on a scale of plus 10 to minus 10.
Walkability	A condition of a system of routes which are barrier free, interesting, safe, well-lit, comfortable and inviting to pedestrian travel. Essentially, the ease with which it is possible to walk around an area, from one point to another.
Way finding	The information which orients users of an area to ensure their ability to navigate through an area. This information includes but is not limited to signs, graphic communications, streetscape elements, building design and the street network.