

**A TACTICAL  
URBANISM  
GUIDEBOOK**

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## List of Abbreviations

BSNL - Bharat Sanchar Nigam Limited

CDP - City Development Plan

CMP - Comprehensive Mobility Plan

DDA - Delhi Development Authority

GI - Galvanised Iron

LED - Light emitting diode

IRC - Indian Roads Congress

IT - Information Technology

IUT - Institute of Urban Transport

MDF - Medium Density Fibre

NGO - Non-Government Organisation

NMT - Non-motorized transport

PwDs - Persons with Disabilities

RoW - Right of Way

RWA - Residents Welfare Association

SCP - Smart City Projects

TU - Tactical Urbanism

ULB - Urban Local Body

UTTIPEC - Unified Traffic and Transportation Infrastructure (Planning & Engineering) Centre

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दुर्गा शंकर मिश्र  
सचिव  
**Durga Shanker Mishra**  
Secretary



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### Foreword

Post 1<sup>st</sup> June, 2020, unlock down in different phases has gradually opened up the system after complete freeze due to Covid-19 pandemic, which started from 24<sup>th</sup> March, 2020. This is bringing back the normalcy in public life and economic activities, including travel across the cities.

My Ministry used the challenges posed by the Covid-19 pandemic as an opportunity to transform the urban landscape for promoting sustainable mobility. We issued Advisory to the States to promote Non-Motorised Transport (NMT), pedestrianise market spaces, promote Intelligent Transport System (ITS) and utilise public transport conducive to prescribed restrictions and regulations to avoid Covid infection. Various cities have taken measures in these directions.

We also initiated two challenges namely, 'Cycles4Change' and 'Streets4People' to make cities compete for improving mobility and reward them for good performance. Such challenges also help in providing technical support by the expert agencies for developing sustainable projects besides funding support.

I am very happy to note that with the support of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) under the Green Urban Mobility Partnership between German Ministry for Economic Cooperation and Development (BMZ) and my Ministry, a **Guidebook for 'Tactical Urbanism'** is being released today. I hope that this Guidebook will help cities to initiate activities for developing safe pedestrian and cycle friendly cities. It will also help in providing environment friendly clean urban mobility option to our citizens.

(Durga Shanker Mishra)

New Delhi  
November 02, 2020

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## JAIDEEP

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सत्यमेव जयते



एक कदम स्वच्छता की ओर

भारत सरकार  
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GOVERNMENT OF INDIA  
MINISTRY OF HOUSING AND URBAN AFFAIRS  
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### Message

Greetings!

European cities have taken COVID-19 as an opportunity to reclaim the space previously occupied by motorised traffic. They have taken lead in announcing packages for cycling infrastructure as a long-term sustainable measure and resorted to "Tactical Urbanism".

Imagine people of our nation cycling and walking together on dedicated cycle tracks and footpaths. The pandemic has presented us with an opportunity to reimagine streets for people. Recreational cyclists are spotted on the streets and a surge in the demand for cycles has been seen. Adequate action towards creating a supporting infrastructure for road safety can help to make this a long-term trend.

The World Health Organisation (WHO) has recommended walking and cycling to maintain physical activity and meet travel needs. The United Nations has recognised bicycle as a key component of post-COVID green recovery. My Ministry of Housing and Urban Affairs has also suggested states to do holistic planning and make cities walking and cycling friendly. Further, advisories have been issued to promote Non Motorized Transport (NMT) and select market places in cities for pedestrianisation.

Further to the broad guidelines provided under the advisories, the launch of "Guidebook for Tactical Urbanism", with the support of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), under the technical cooperation of Integrated and Sustainable Urban Transport Systems in Smart Cities (SMART-SUT) will surely help the cities to plan and create safe pedestrian and cycling infrastructure.

**New Delhi**  
November 03, 2020

Jaideep

(Jaideep)

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für internationale  
Gesamtwirtschaft



### Message

Greetings!

Cities all over the world have taken COVID19 as an opportunity to reclaim the space occupied by private vehicles for pedestrians, cyclists, and vendors. The pandemic has presented an opportunity not only to reimagine the streets but also to distribute the streets equitably. A surge in the demand of cycles in the cities over the past few months matches this vision. To keep the momentum going, supporting actions by the cities to create adequate infrastructure for pedestrians, cyclists, and road safety is required. Developing such infrastructure will help not only in reducing air pollution and congestion on the streets but also help in maintaining the physical activity of the people.

We believe that the initiatives by the Ministry of Housing and Urban Affairs (MoHUA), Government of India such as the “Cycles4Change Challenge”, and the “Street for People Challenge” will help the cities in developing suitable infrastructure for pedestrians and cyclists. These initiatives will not only help the cities in developing safe infrastructure but also inspire and encourage people and cities to focus on creating pedestrian friendly streets through easy and quick measures.

Following these initiatives, GIZ is pleased to support MoHUA in launching the “Guidebook for Tactical Urbanism” through the technical cooperation “Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)”, under the umbrella of the “Indo-German Green Urban Mobility Partnership”. We believe that this guidebook will direct the cities in creating quick and easy solutions to demonstrate pedestrian and cyclist friendly streets will help India to fulfil the Nationally Determined Contributions (NDC) of the Paris Agreement.

Kind regards

Juergen Baumann  
Project Director  
Integrated Sustainable Urban Transport Systems for Smart Cities  
GIZ GmbH

1



# INTRODUCTION

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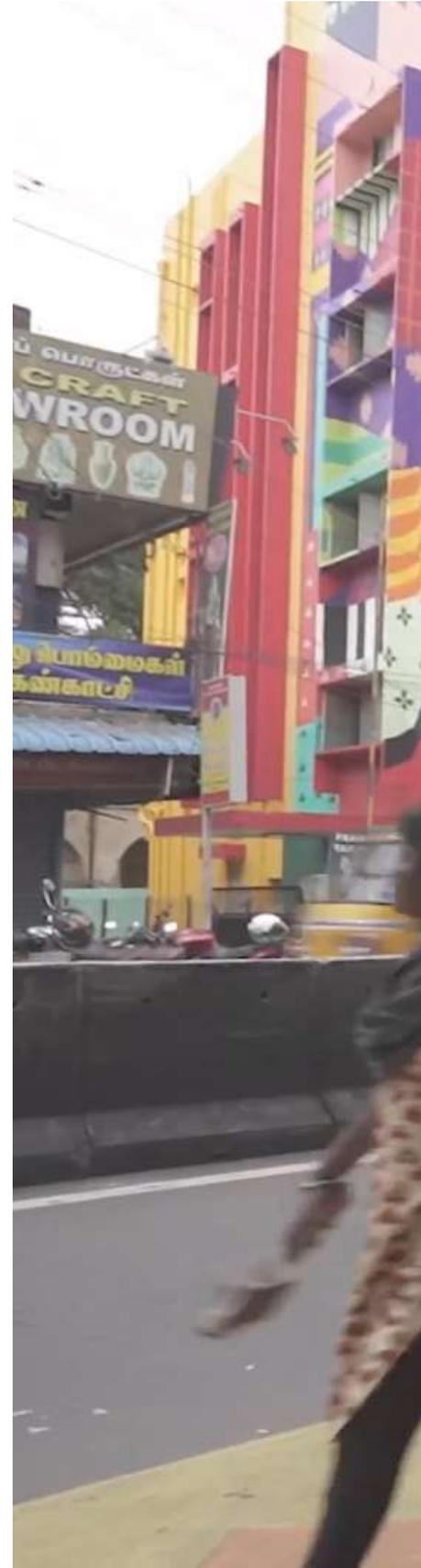
## PURPOSE OF THIS GUIDEBOOK

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 and group gatherings are prohibited to protect public health, 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 can only partly 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 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 urban local bodies (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 good practices from India for reference.

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# PEOPLE AND PROCESSES

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## 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:

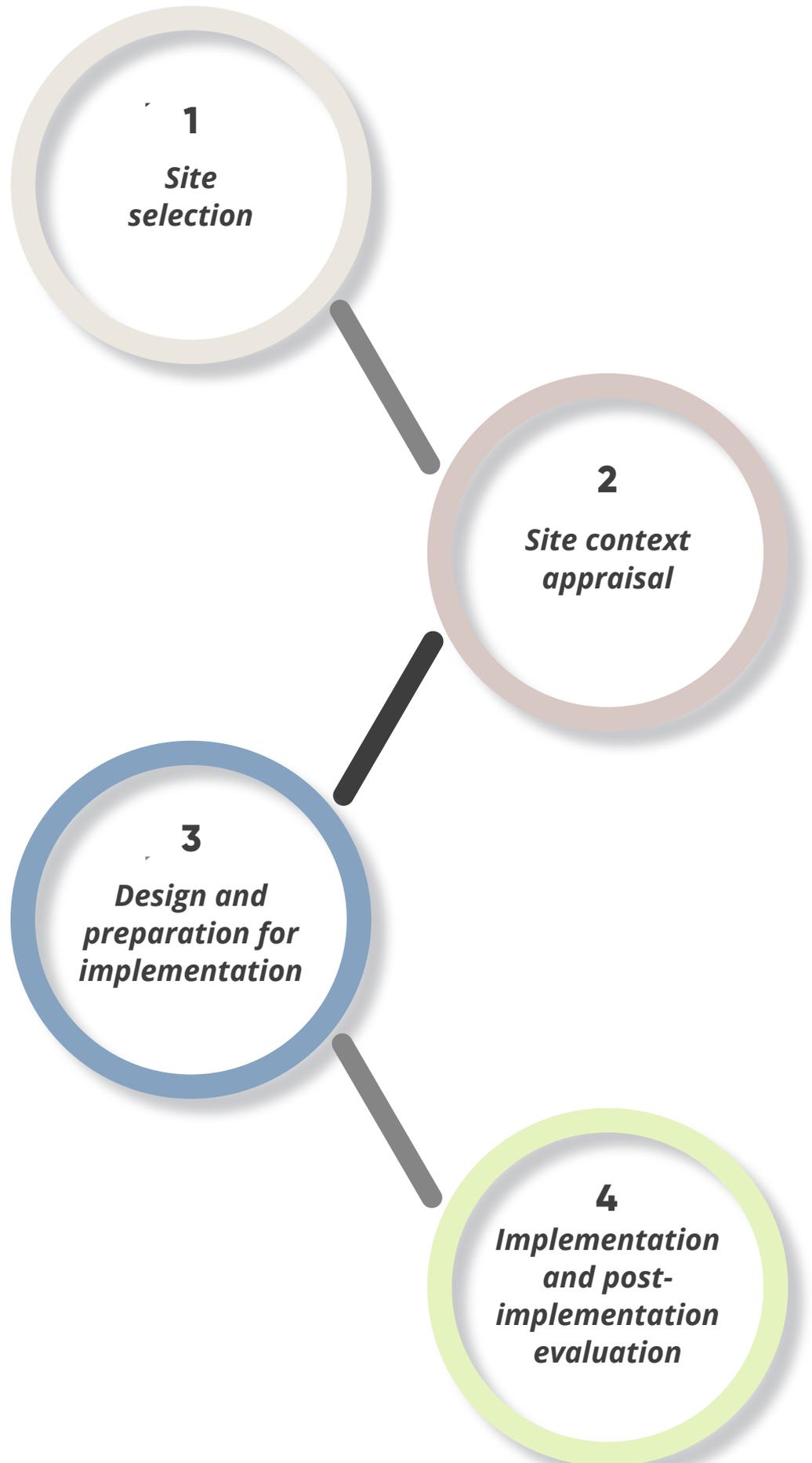
- 1. Site selection** – Selecting a stretch to plan and execute a tactical urbanism project
- 2. Site context appraisal** - Understanding the site, its context, opportunities and constraints
- 3. Design and preparation for implementation** – Detailing out the designs based on site context appraisal including 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/ fundraising**

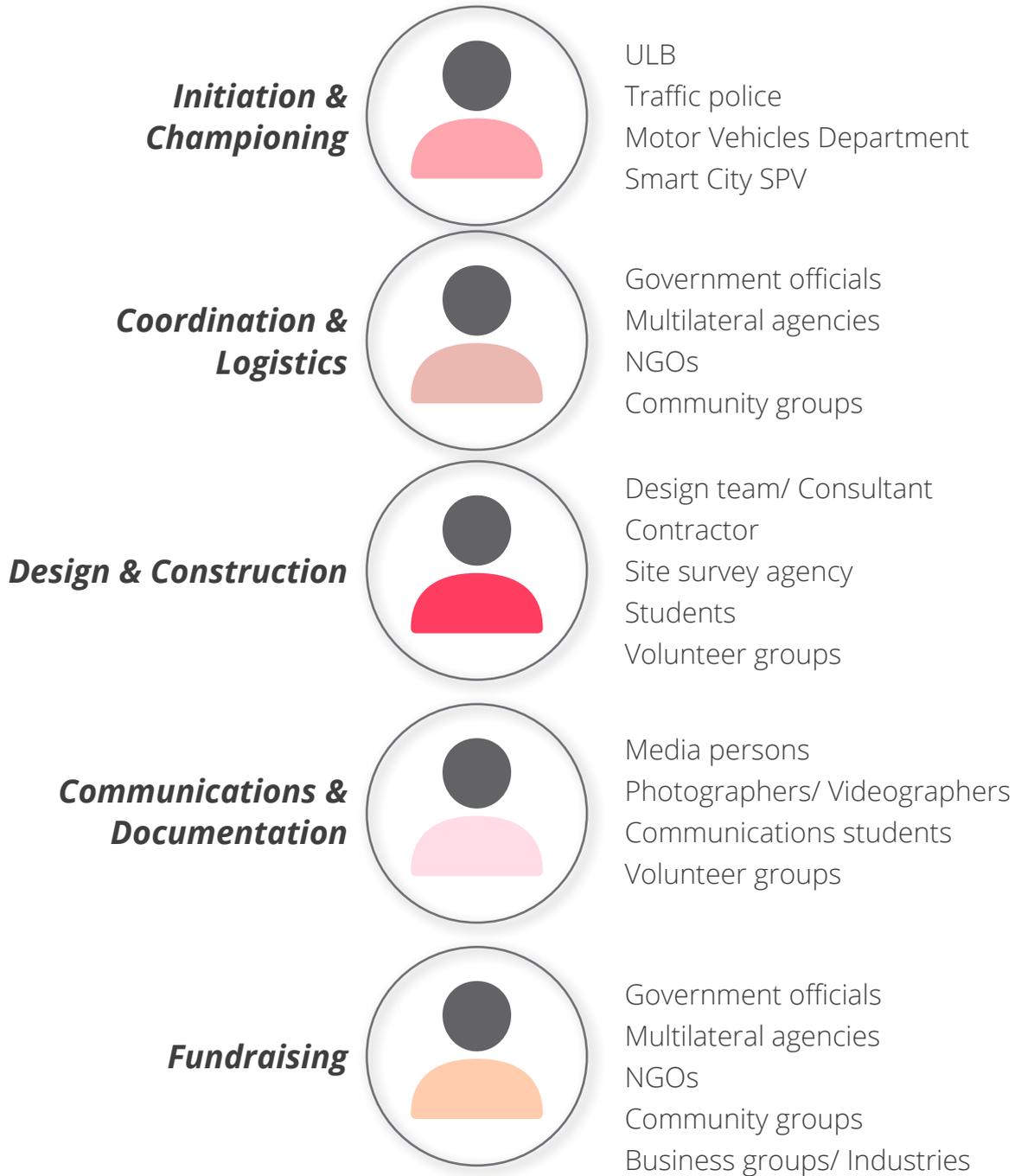
Each of these roles will need to be performed by individuals/ teams in close coordination with each other throughout the cycle of the tactical urbanism project to ensure a successful endeavour.

## 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.



## STAGE 1 Site selection

  
Identification of a loop/ stretch as per the criteria

## STAGE 2 Site context appraisal



Mapping the site for intervention

Physical form attributes of the street

Traffic study including pedestrian & vehicular counts and parking study

Activity mapping and Socio-cultural aspects

Age and gender mapping

Socio-economic activity mapping

Green cover/ Tree mapping

User group mapping and analysis



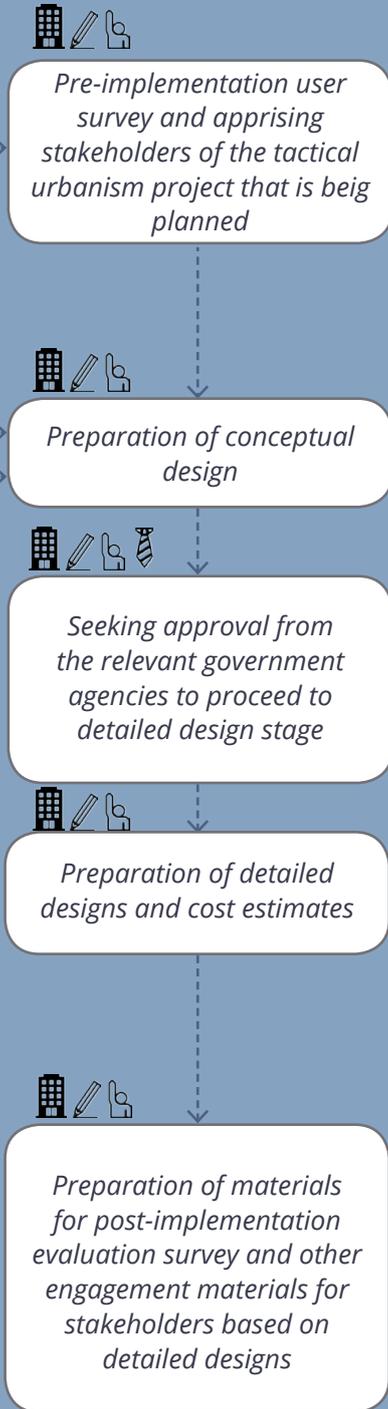
  
Total station survey\*

\* 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.

-  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)

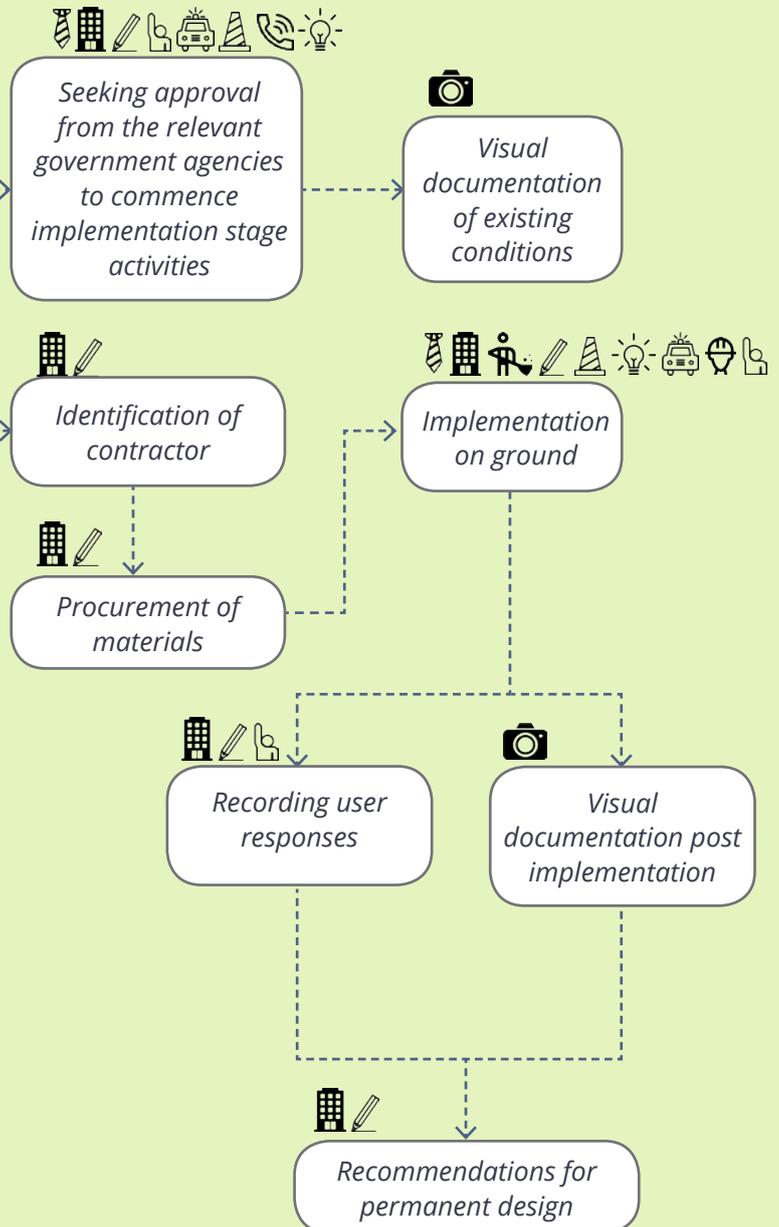
### STAGE 3

## Design and preparation for implementation



### STAGE 4

## Implementation and post-implementation evaluation



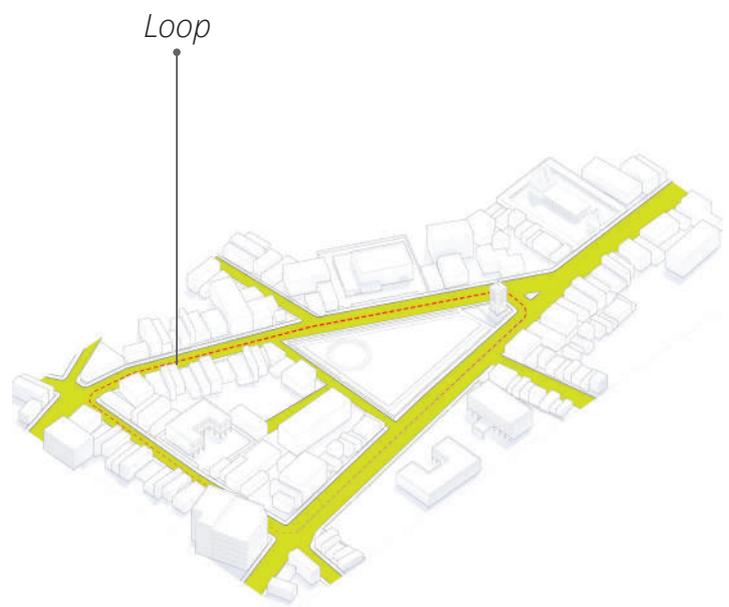
## OVERALL WORK FLOW FOR A TACTICAL URBANISM PROJECT

## 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-

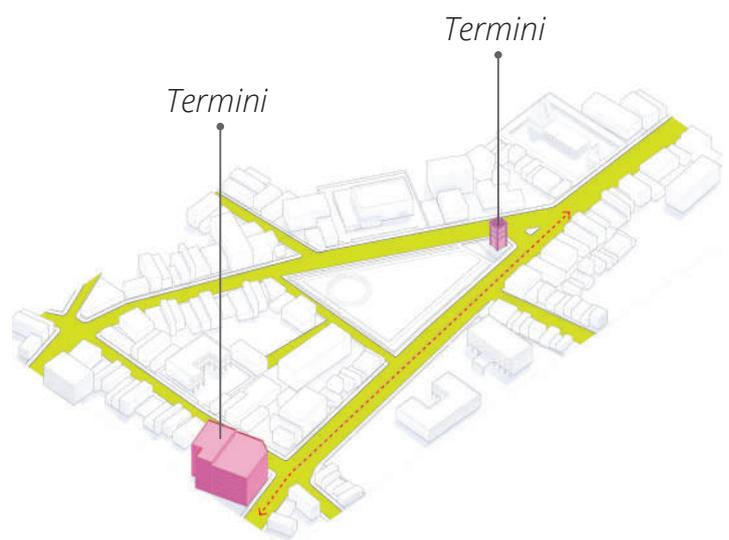
### 1 *Loops are good!*

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.

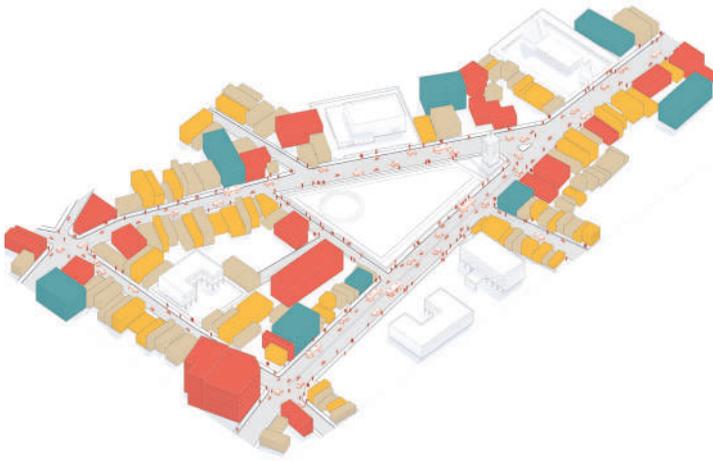


### 2 *Connect places that people visit*

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.



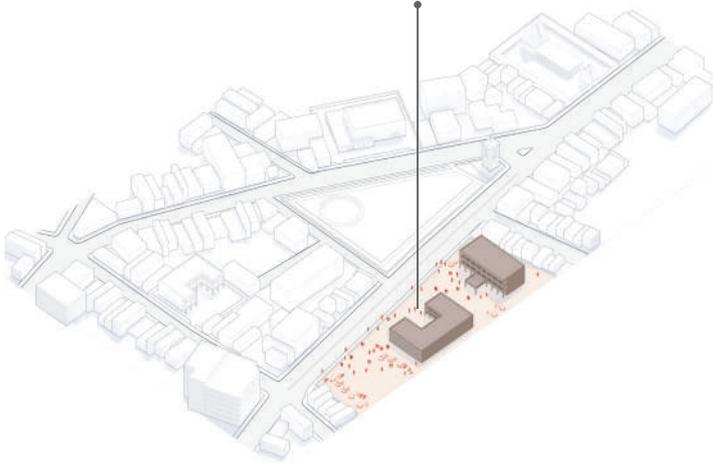
Mixed-use street/ block



### 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.

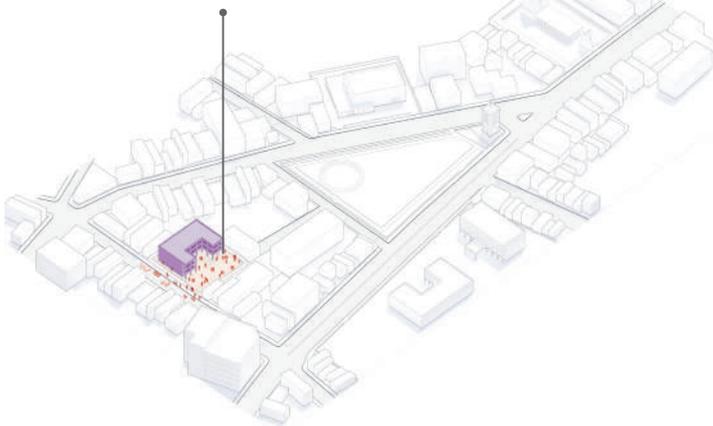
Public building



### 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

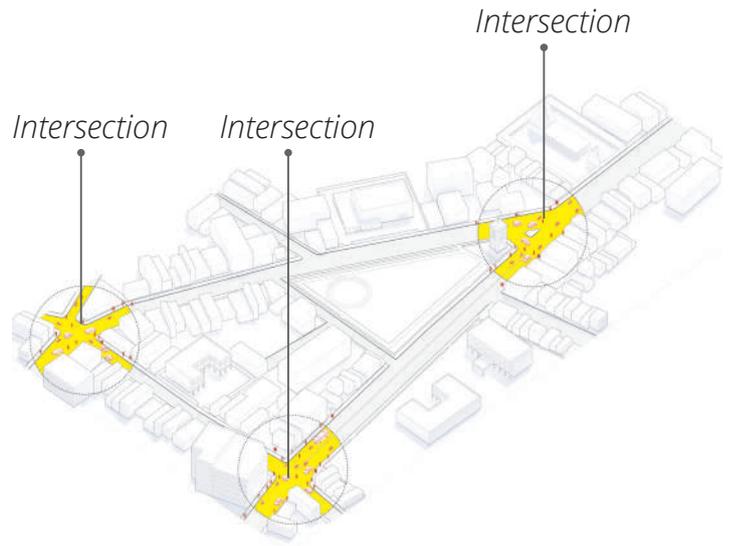


### 5 **Bring children into the equation**

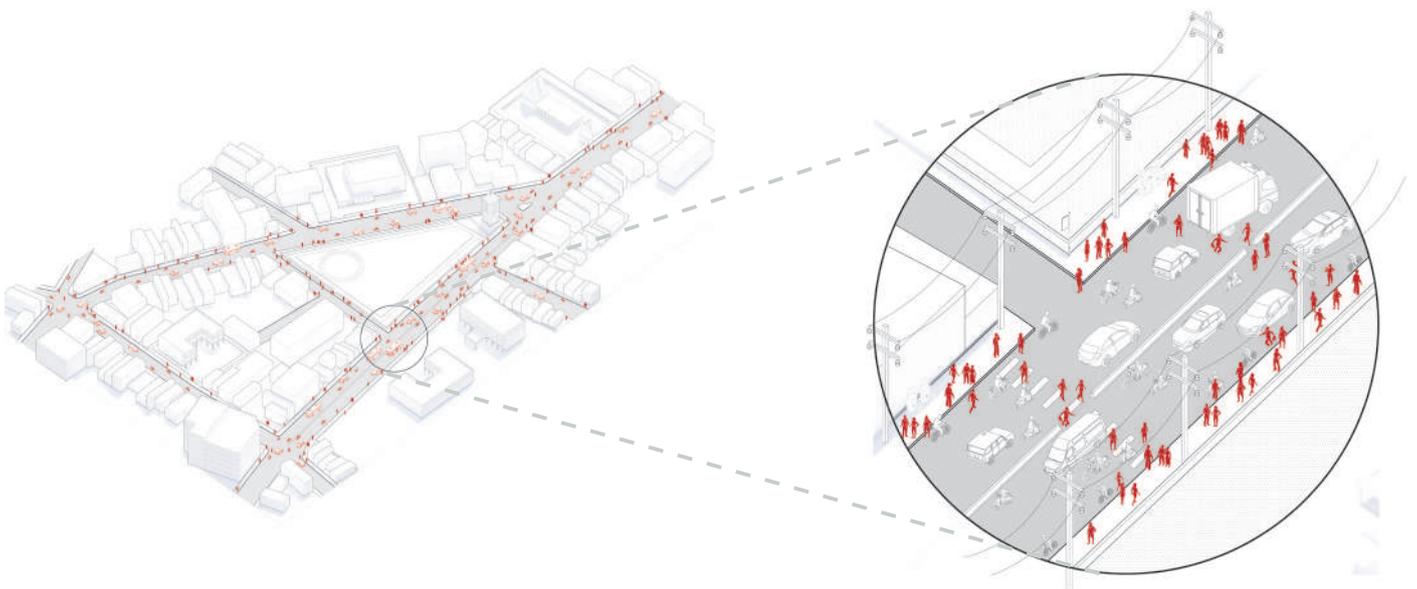
It would be desirable to be located in a neighborhood with schools/ colleges because it opens up the possibility to consider children and their needs in the design.

## 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.



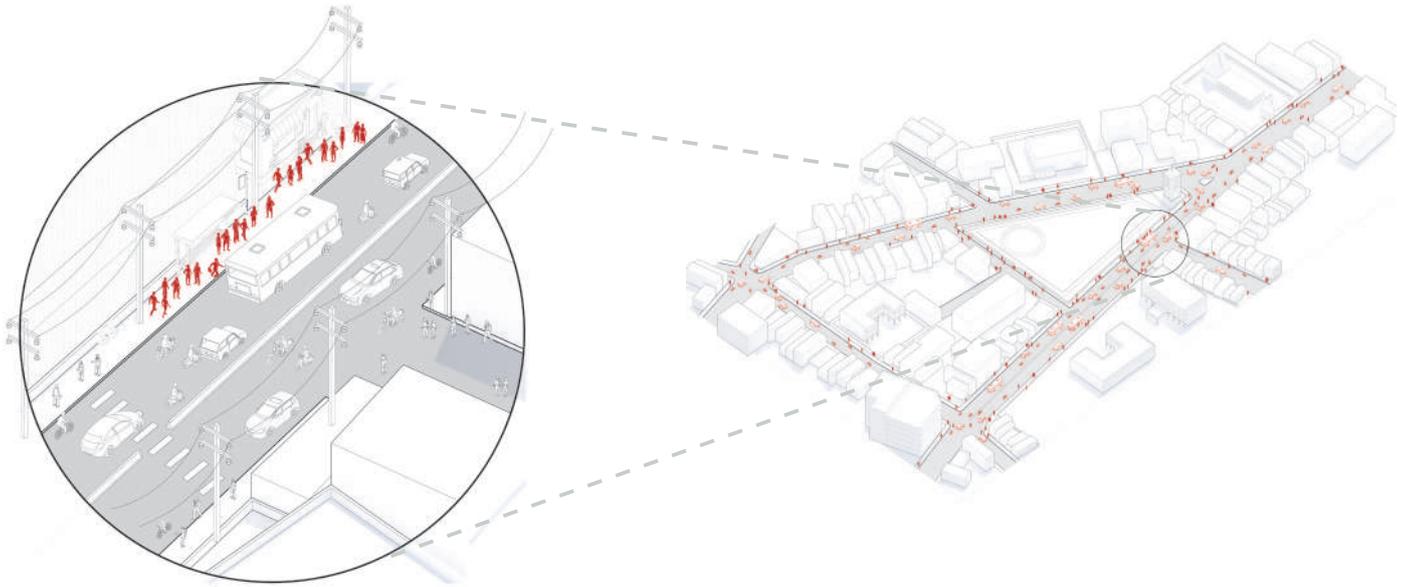
## 7 *Follow the pedestrians*



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

*A busy street with heavy pedestrian volume*

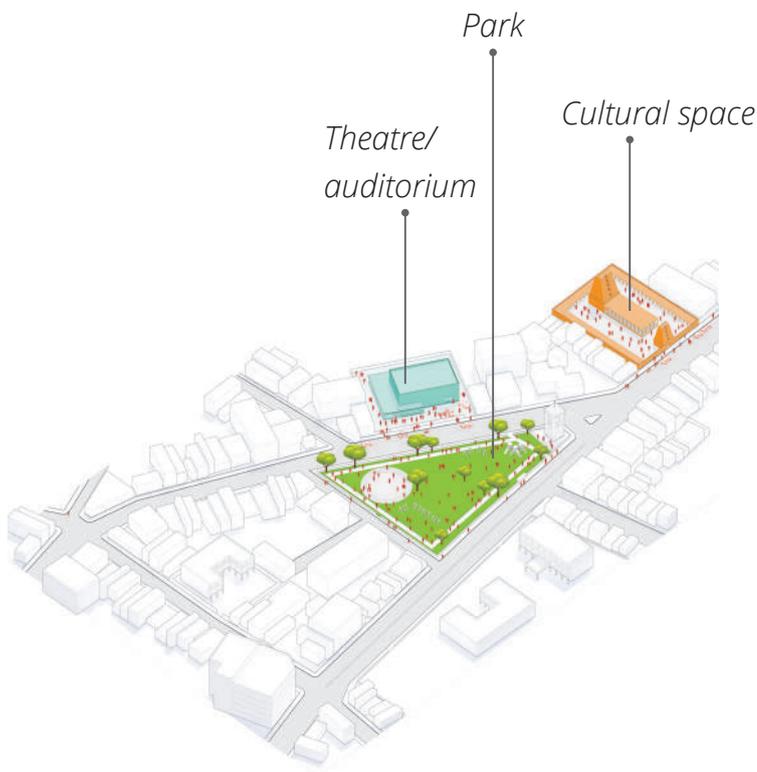
## 8 Accommodate public transport



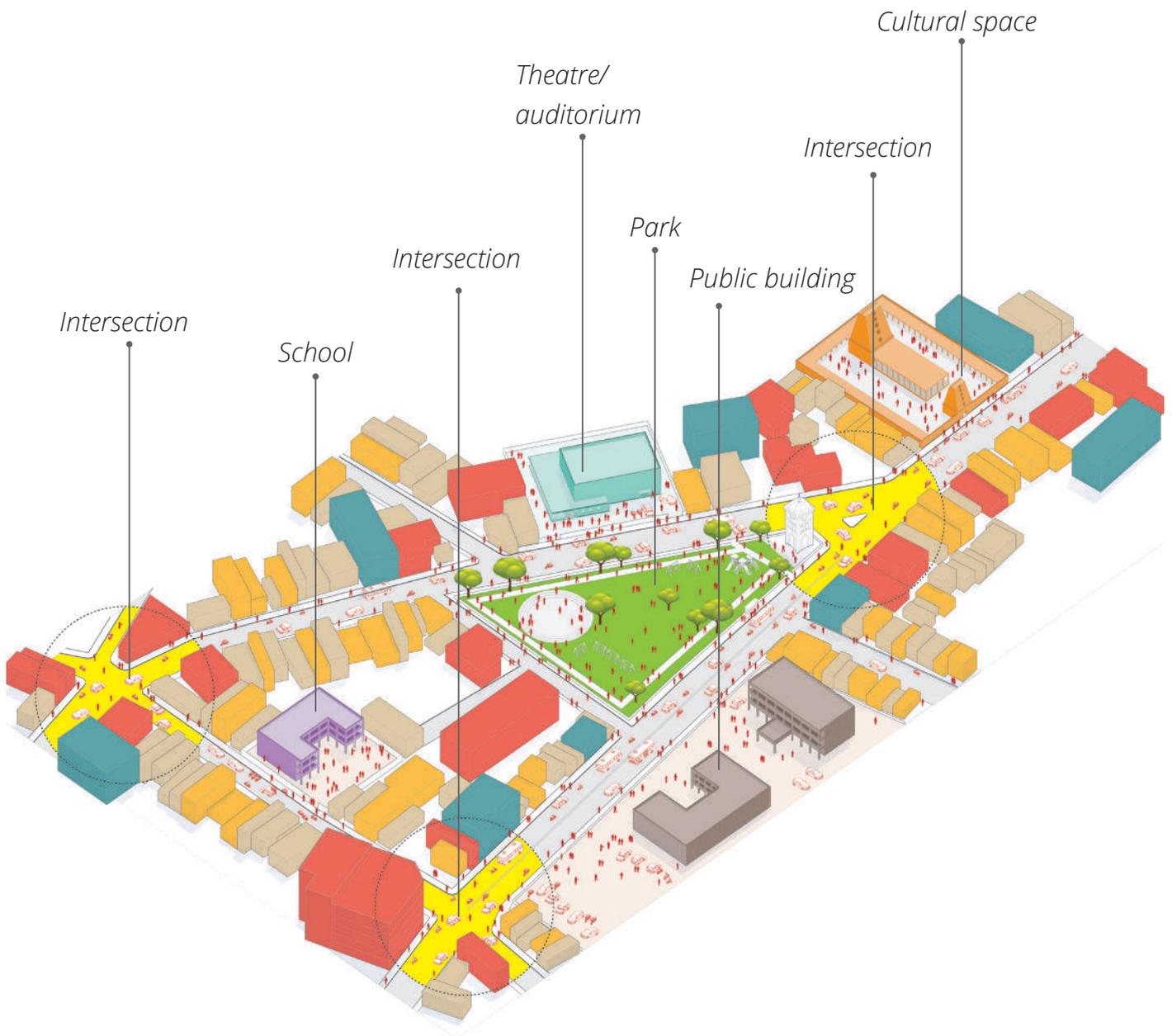
Bus stop

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.



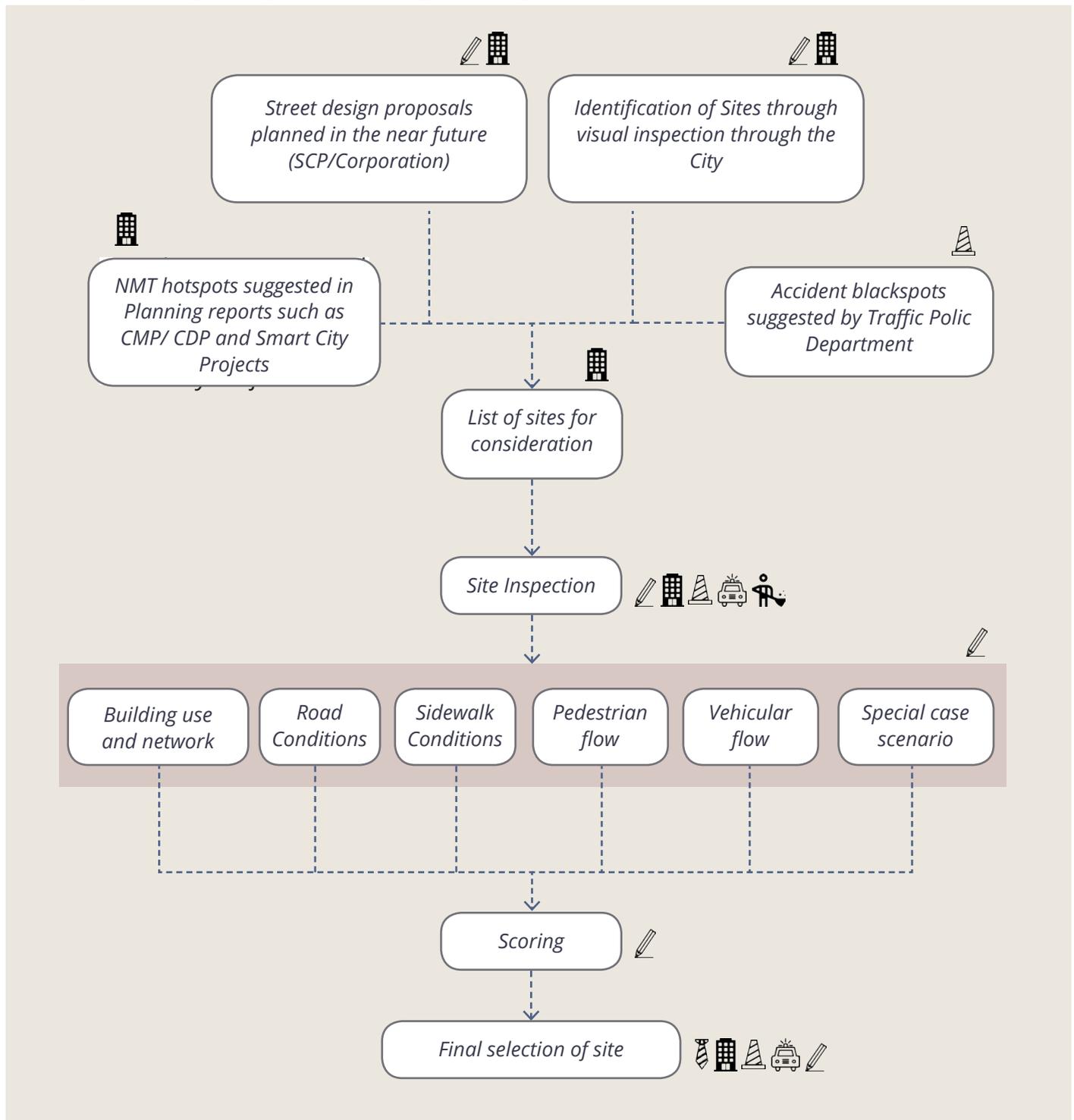
Alternatively, if a stretch is already under consideration for a tactical urbanism project, it is useful to do a quick assessment before finalizing the stretch against the scoring sheet in the facing page. This scoring is based on the 9 criteria already listed and serves as a ready reckoner.

## 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<br>School/College<br>Heritage building<br>Transit hub<br>Park/ Open space<br>Public building | Shopping mall<br>Theatre<br>Religious building<br>Water body<br>Residential | Cemetery<br>Liquor store<br>Industrial uses<br>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/<br>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 than 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<br>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



Bureaucrats

Municipal workers/ On-ground staff

Police (Law & Order)

Engineers

Traffic Police

Designers/ Consultants

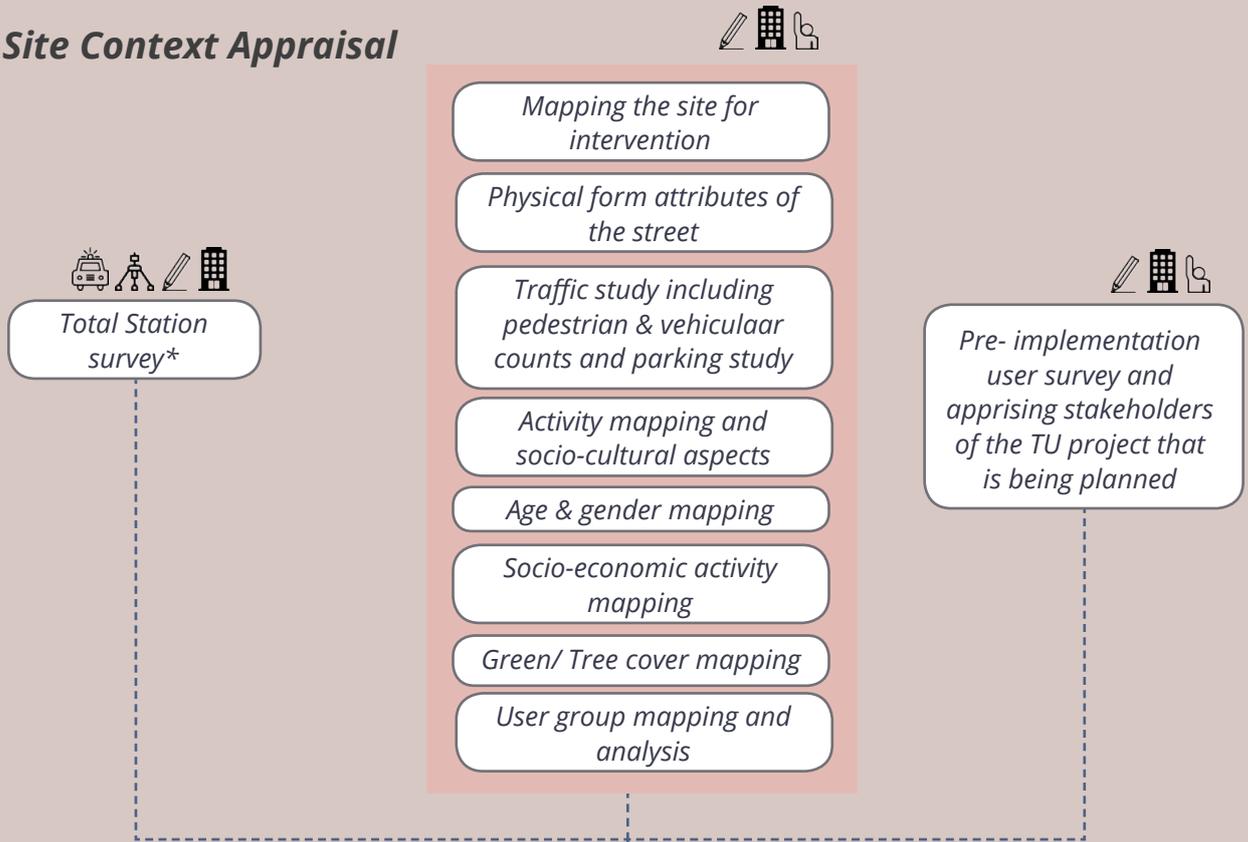
## STAGE 2 - SITE CONTEXT APPRAISAL

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 shows how to start the design process and who should be involved including the list of data that needs to be mapped. Chapter 3 on ***Thematic Interventions*** further elaborates the process for mapping the required data.

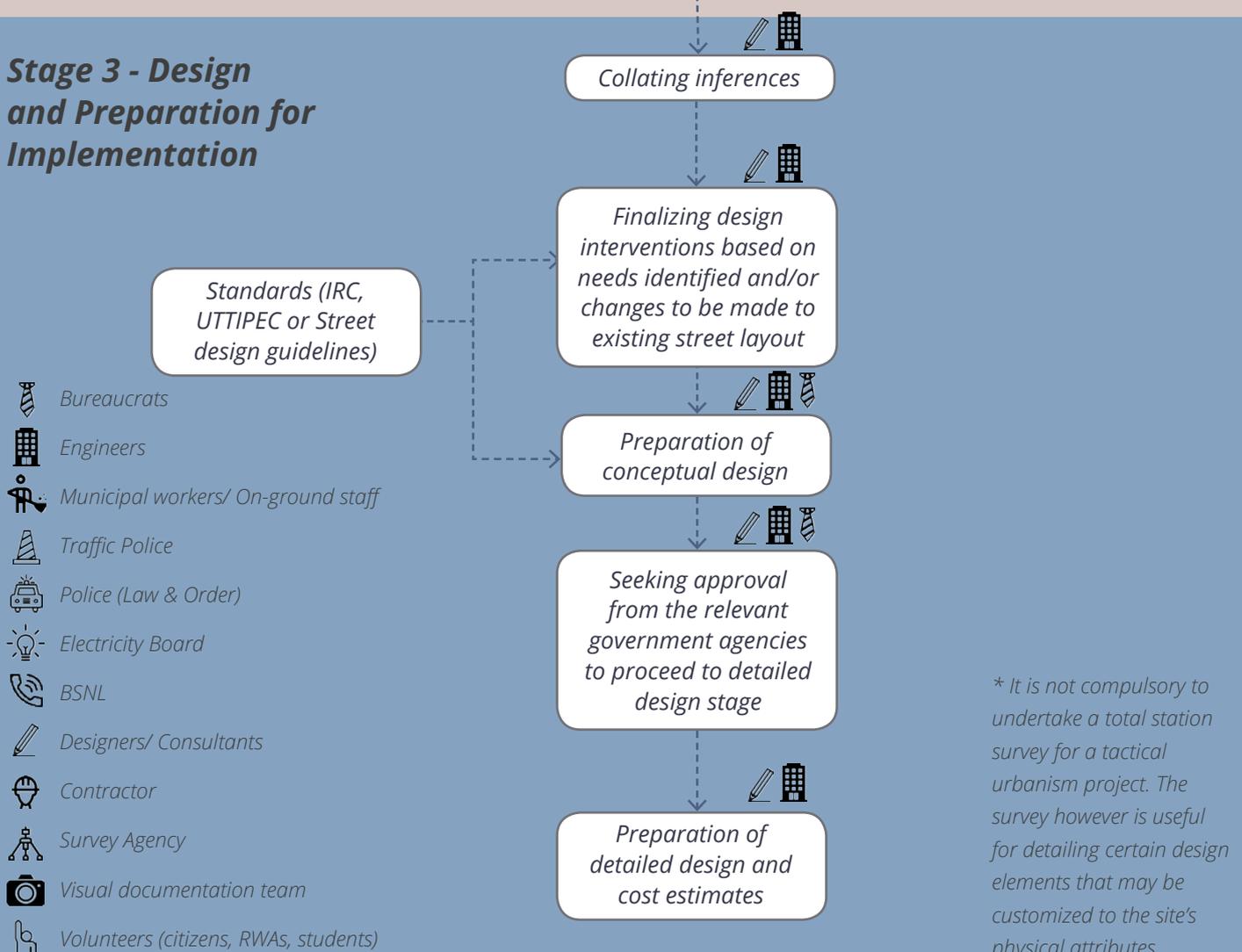
## STAGE 3 - DESIGN AND PREPARATION FOR IMPLEMENTATION

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 Indian Road Congress (IRC), Institute of Urban Transport (IUT), Unified Traffic and Transportation Infrastructure (Planning & Engineering) centre (UTTIPEC) or local street design guidelines. 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



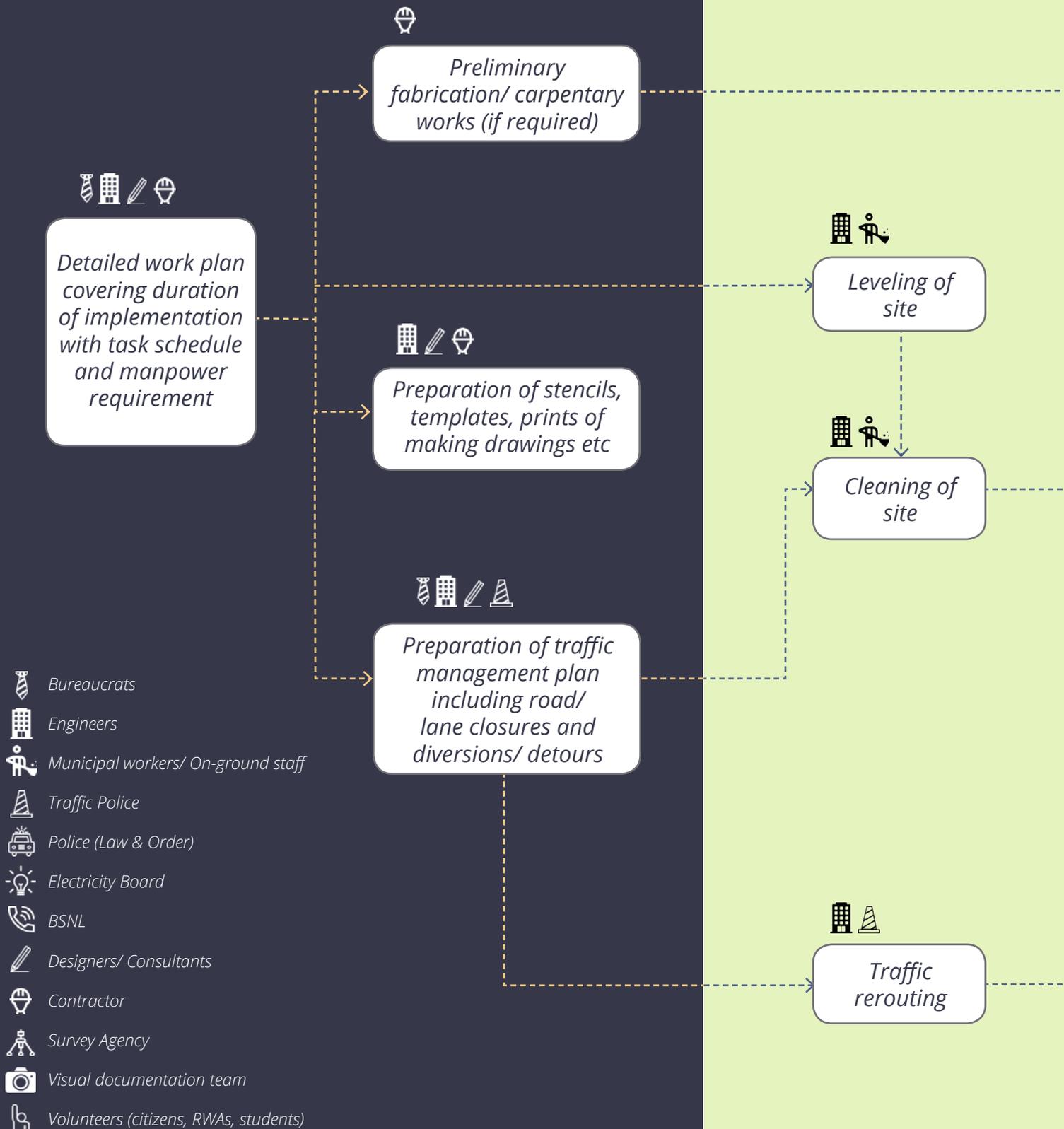
## **STAGE 4 - IMPLEMENTATION AND POST-IMPLEMENTATION EVALUATION**

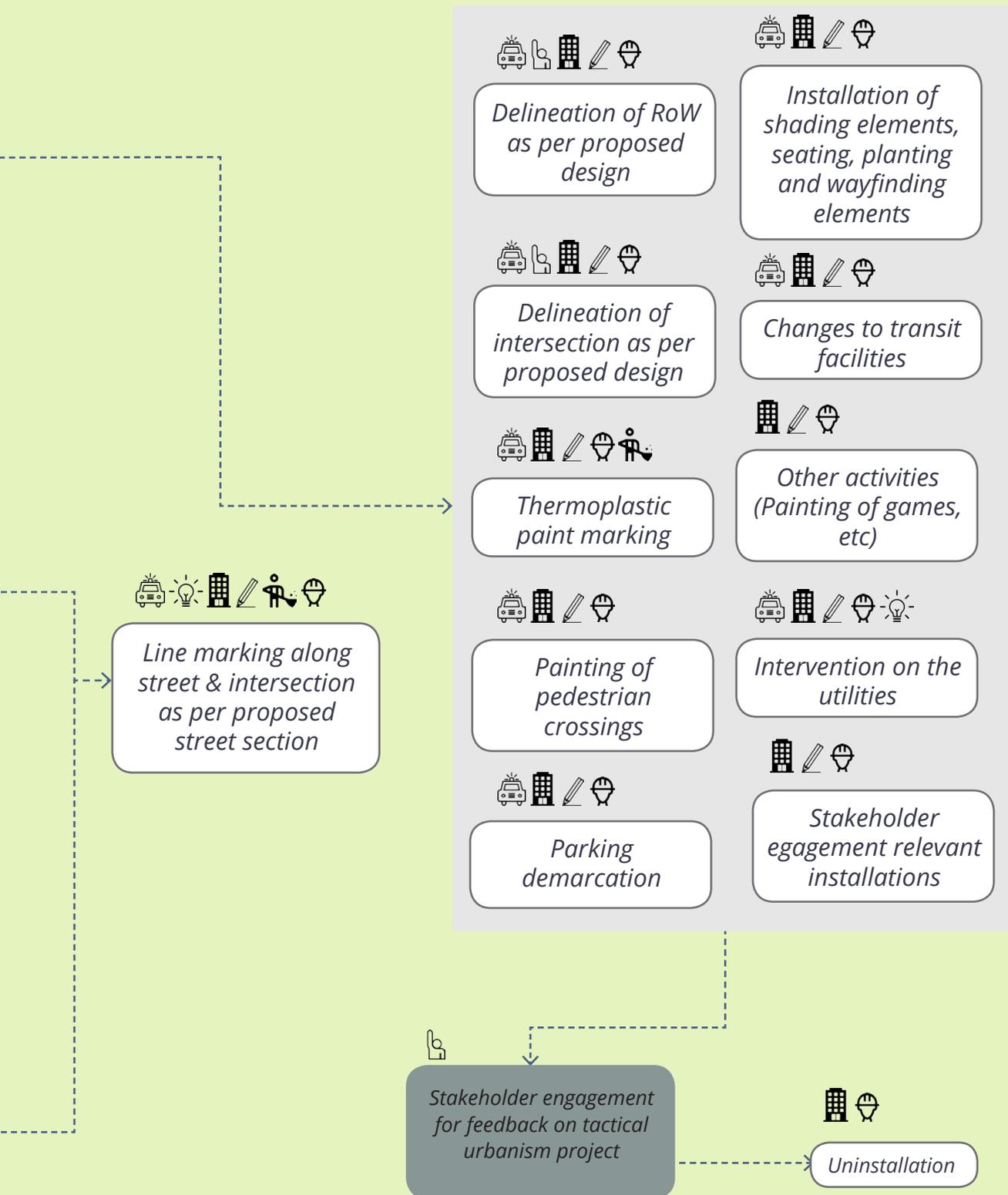
This stage involves moving from the drawing board to the street and therefore starts with a detailed work plan for execution that requires intense coordination specifically between all the city departments. In particular, a traffic management plan needs to be drawn up with the traffic police for road/ 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





## 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.

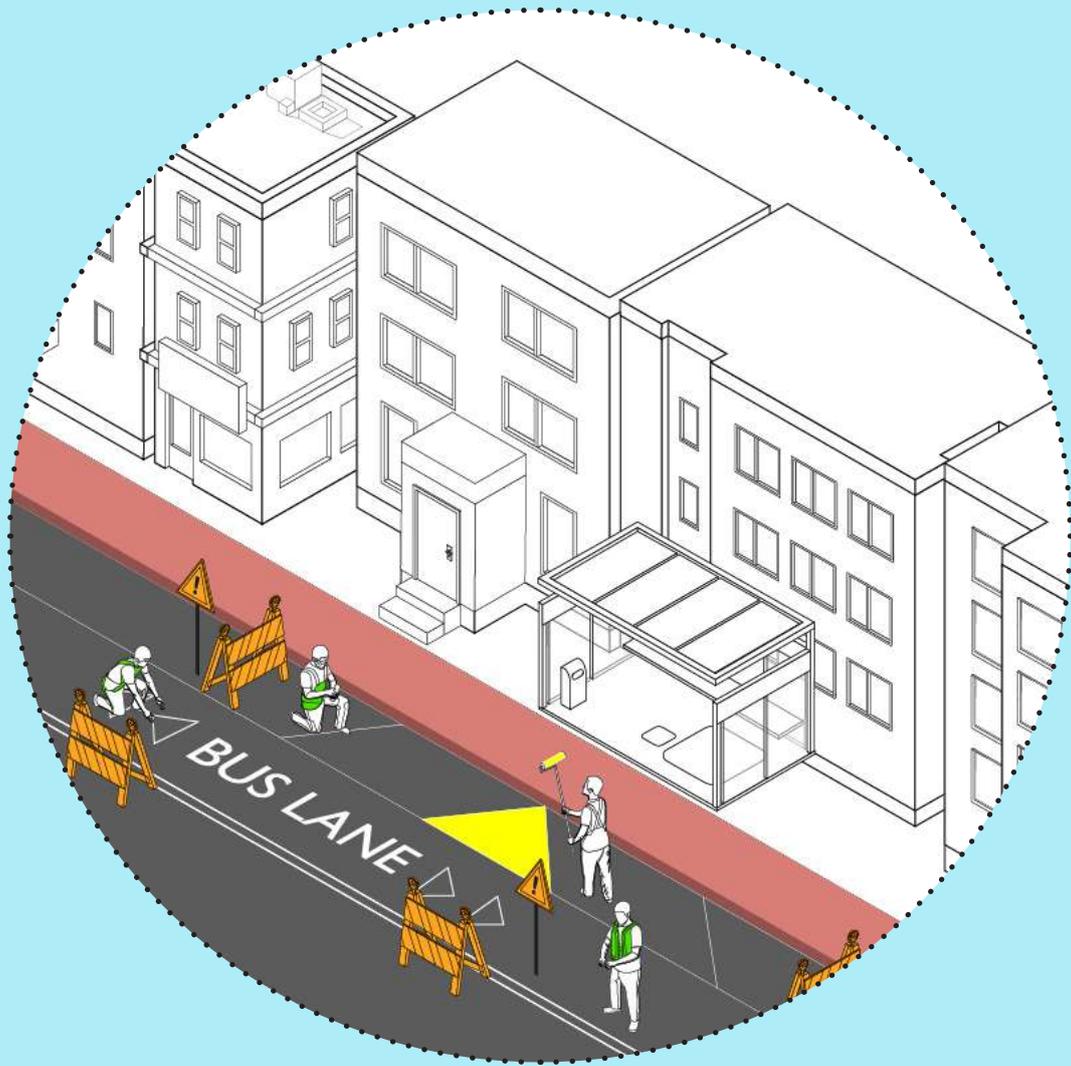


3



# THEMATIC INTERVENTIONS

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## **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*

*Landscaping/ planting*

*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

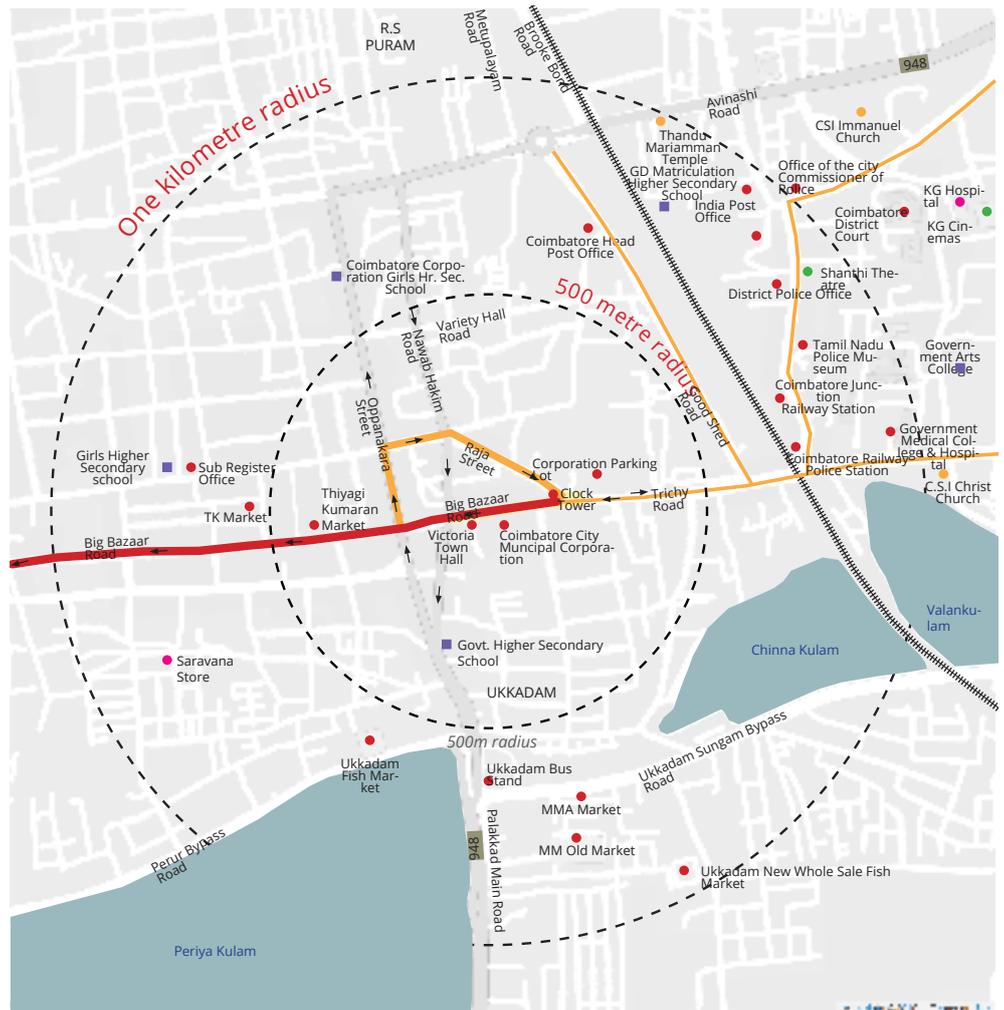


A map showing the major landmarks such as commercial, recreational, public amenities, healthcare, religious centres, institutional, transit hubs and movement pattern within one kilometre radius of the selected stretch or one kilometre extent on both sides of the selected stretch.

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.*

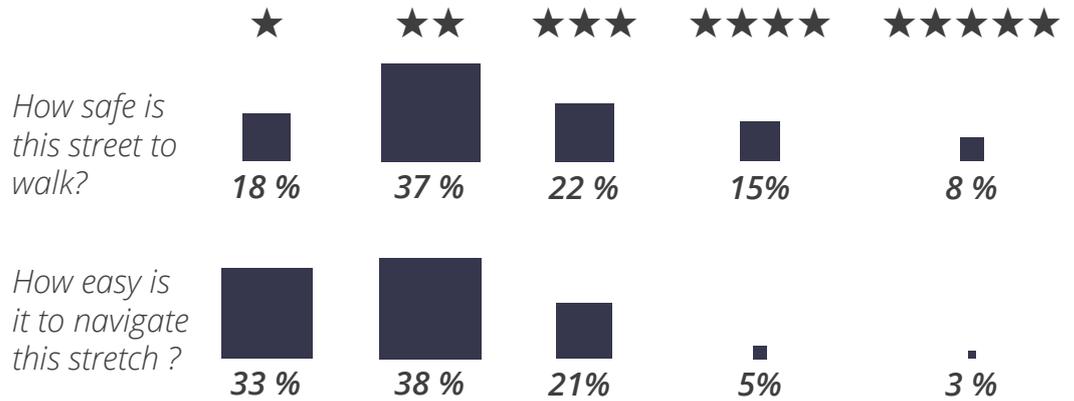


## USER SURVEYS

### 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

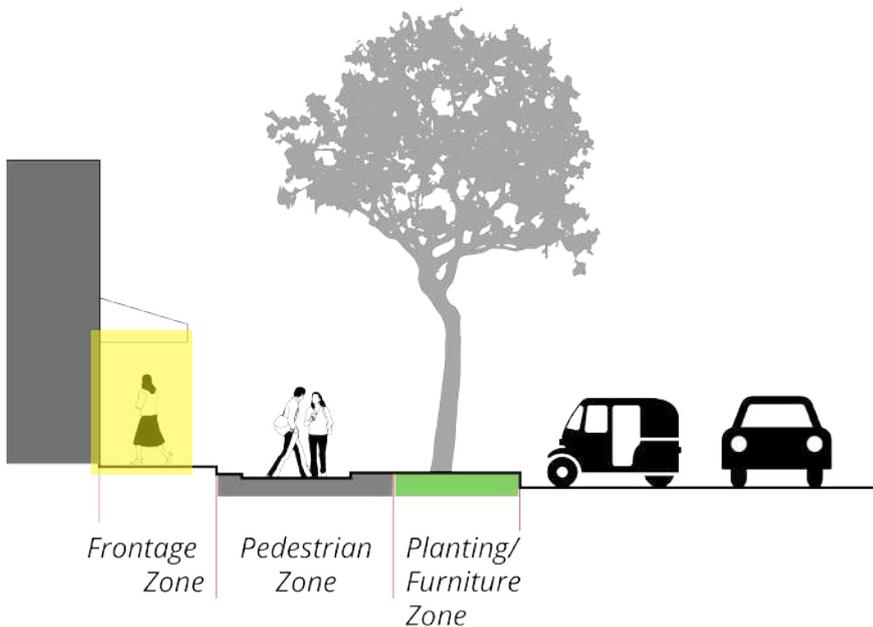
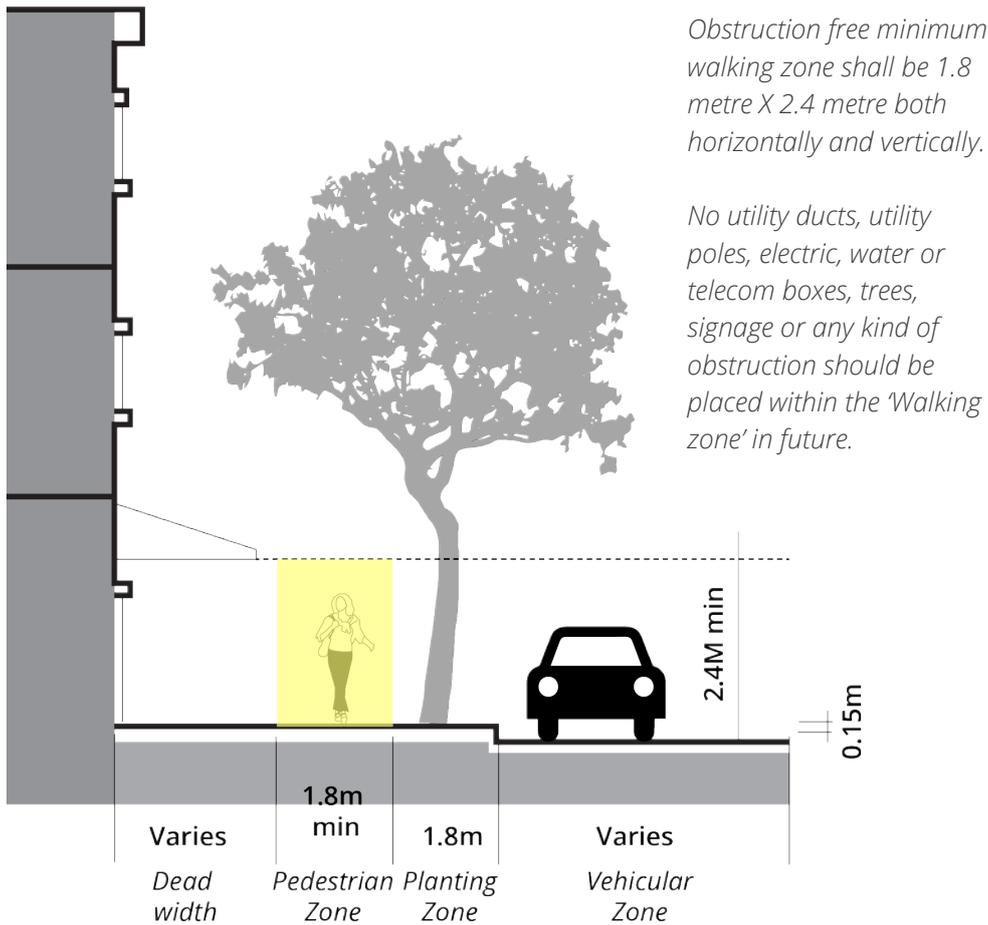
### Sidewalk design standards

#### Required width of footpath as per adjacent land use

|   |                   |
|---|-------------------|
| Minimum obstacle free walkway width in residential/ mixed use areas | 1.8 metres        |
| Commercial/ Mixed use areas   | 2.5 metres        |
| Shopping frontages  | 3.5 to 4.5 metres |
| Bus stops   | 3 metres          |
| High Intensity Commercial areas                                     | 4 metres          |

Source: IRC 103: 2012

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



### **Frontage zone or dead width standards**

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

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

### **Kerb ramp standards**

1:12 minimum slope at all level change points;  
1.2 metres is the minimum width of ramp.

Source: UTTIPEC - STREET DESIGN CHECKLIST

### **Cycle track standards**

When vehicles using the route is more than 200 per hour, separate cycle tracks are justified even if cycle traffic is only 100 per hour.

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

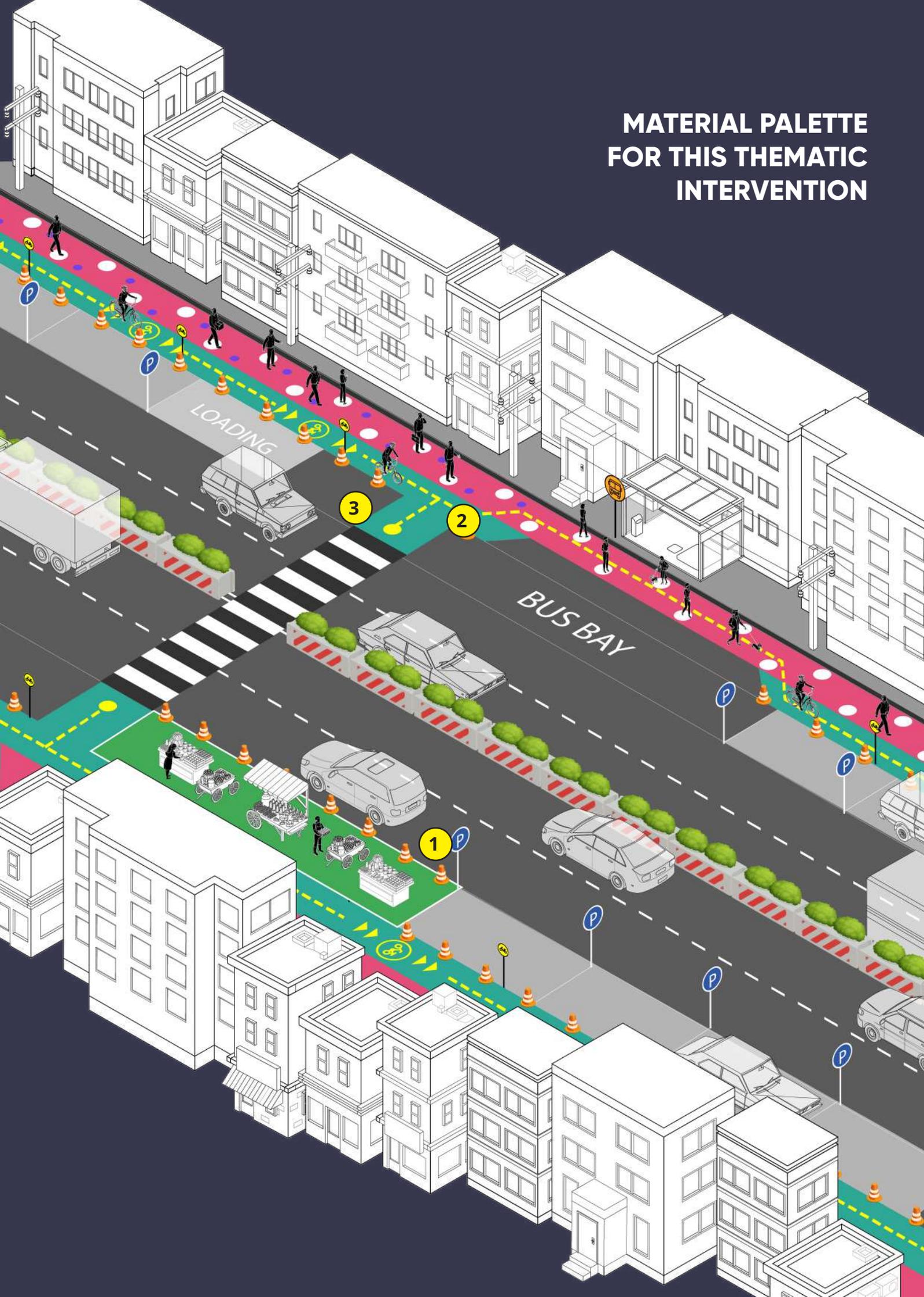
Source: IRC 86 - 1983

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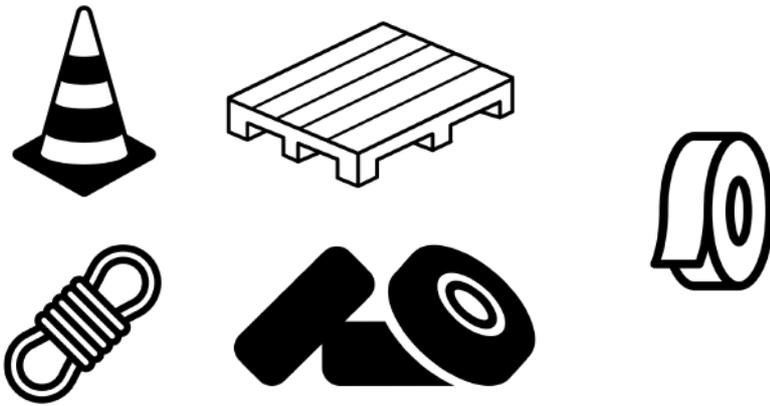
## **KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION**

- *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



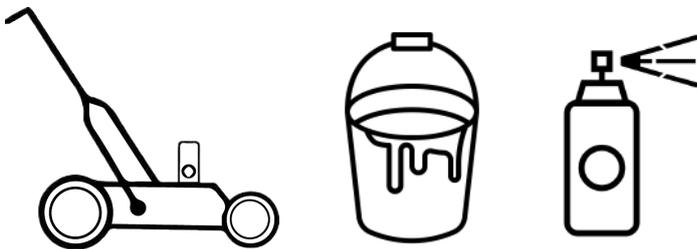
## 1 *RoW Demarcation*



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

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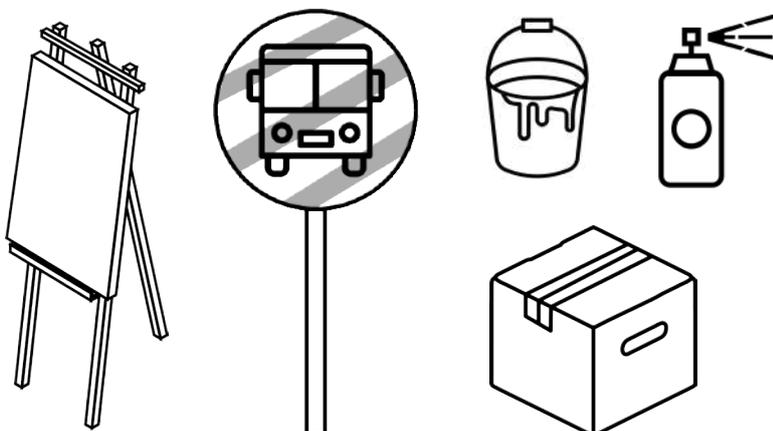
## 2 *Surface Marking*



- 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



# 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

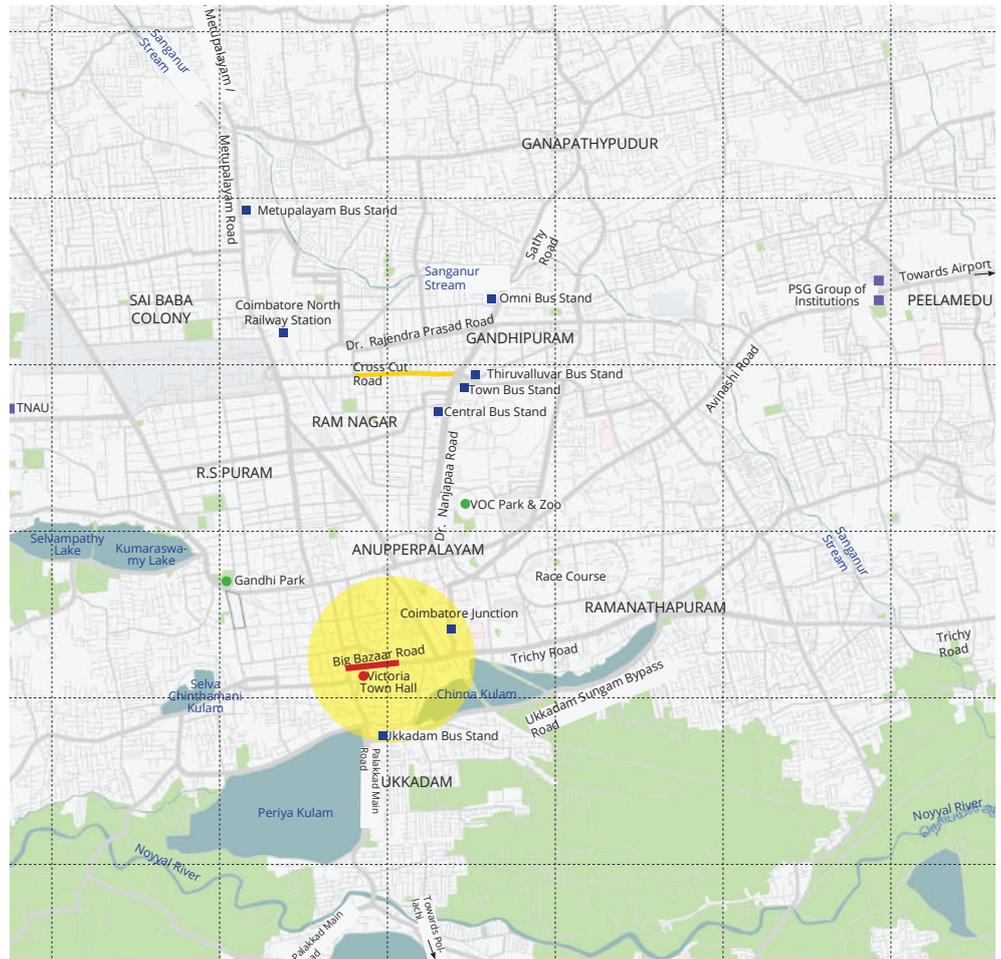


This mapping is important to understand the history and context of the selected stretch at the city scale and its significance with respect to the overall movement patterns in the city.

**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

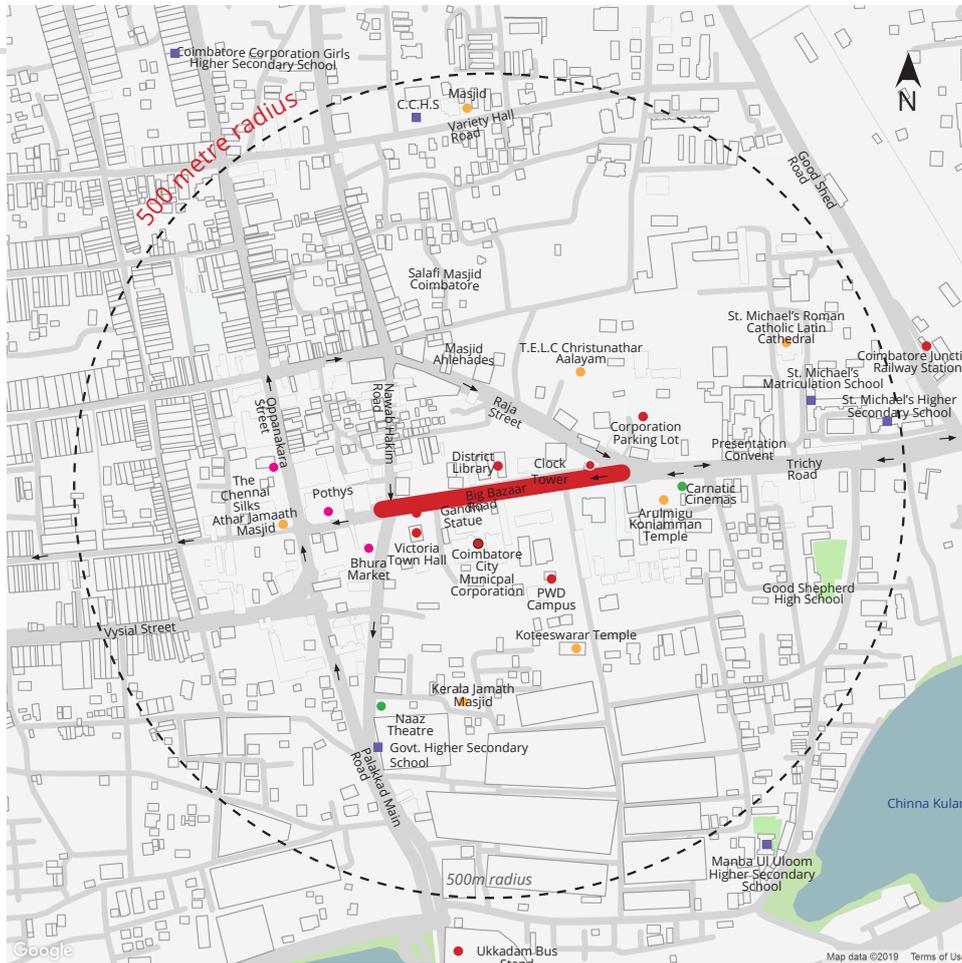


## Block Structure

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.

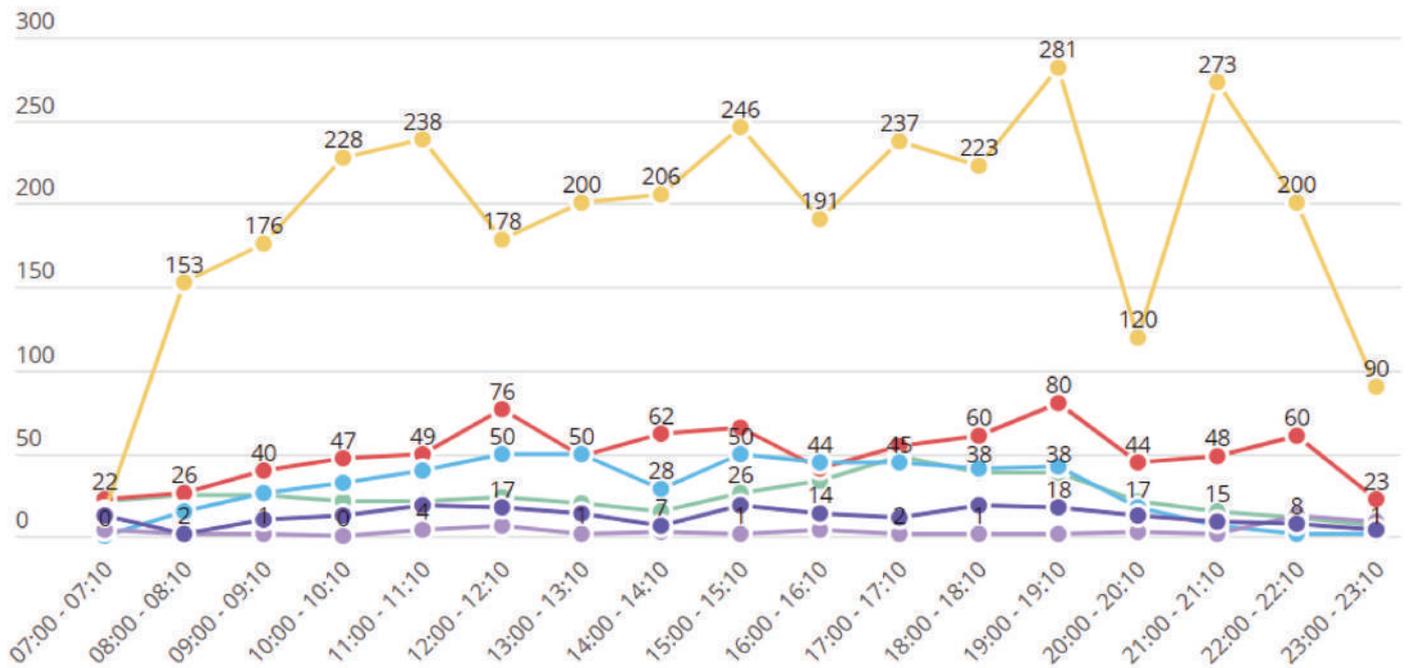


*\* Refer to Vehicular count template in Annexures.*

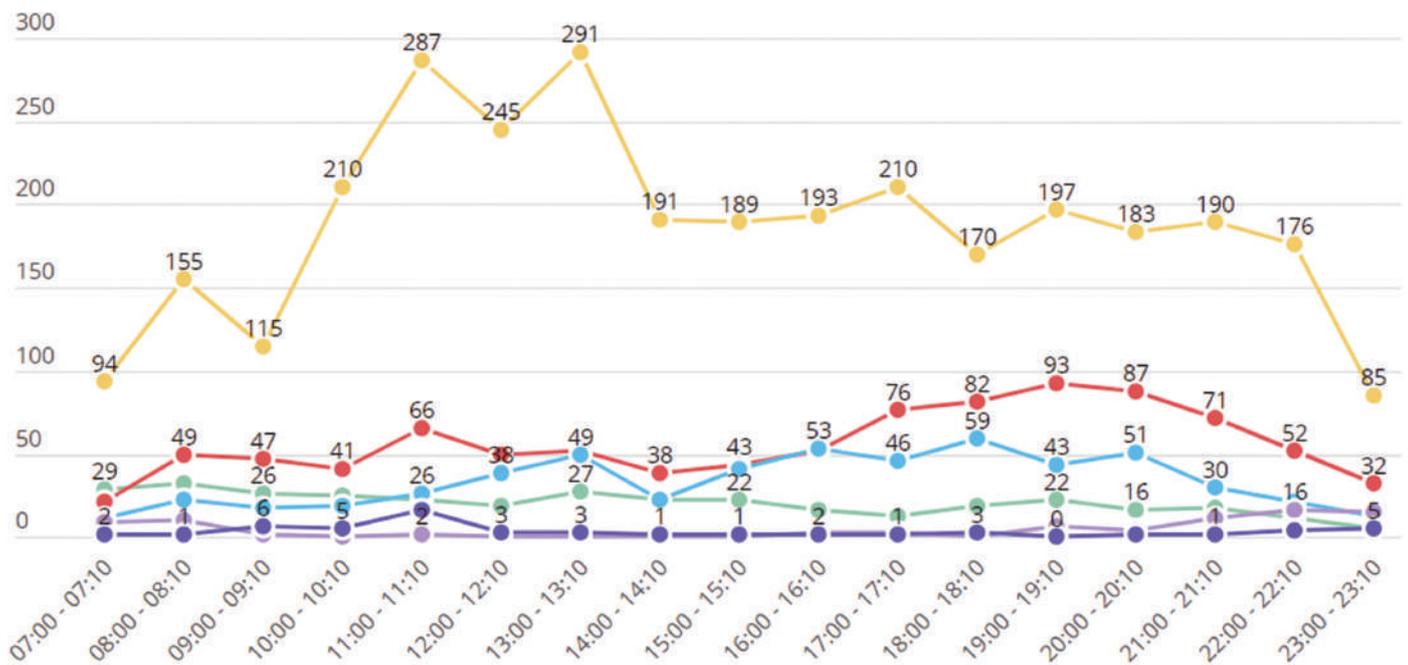
## Sample recording of weekday and weekend vehicular counts



### 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

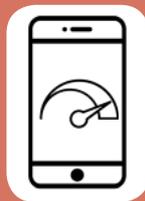




## Traffic speeds

Recording the average speed of various vehicles on the road with speed cameras 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



30  
km/h

Car

40  
km/h

Two- Wheeler

35  
km/h

Auto Rickshaw

25  
km/h

Public Bus

4  
km/h

Pedestrian

## 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.

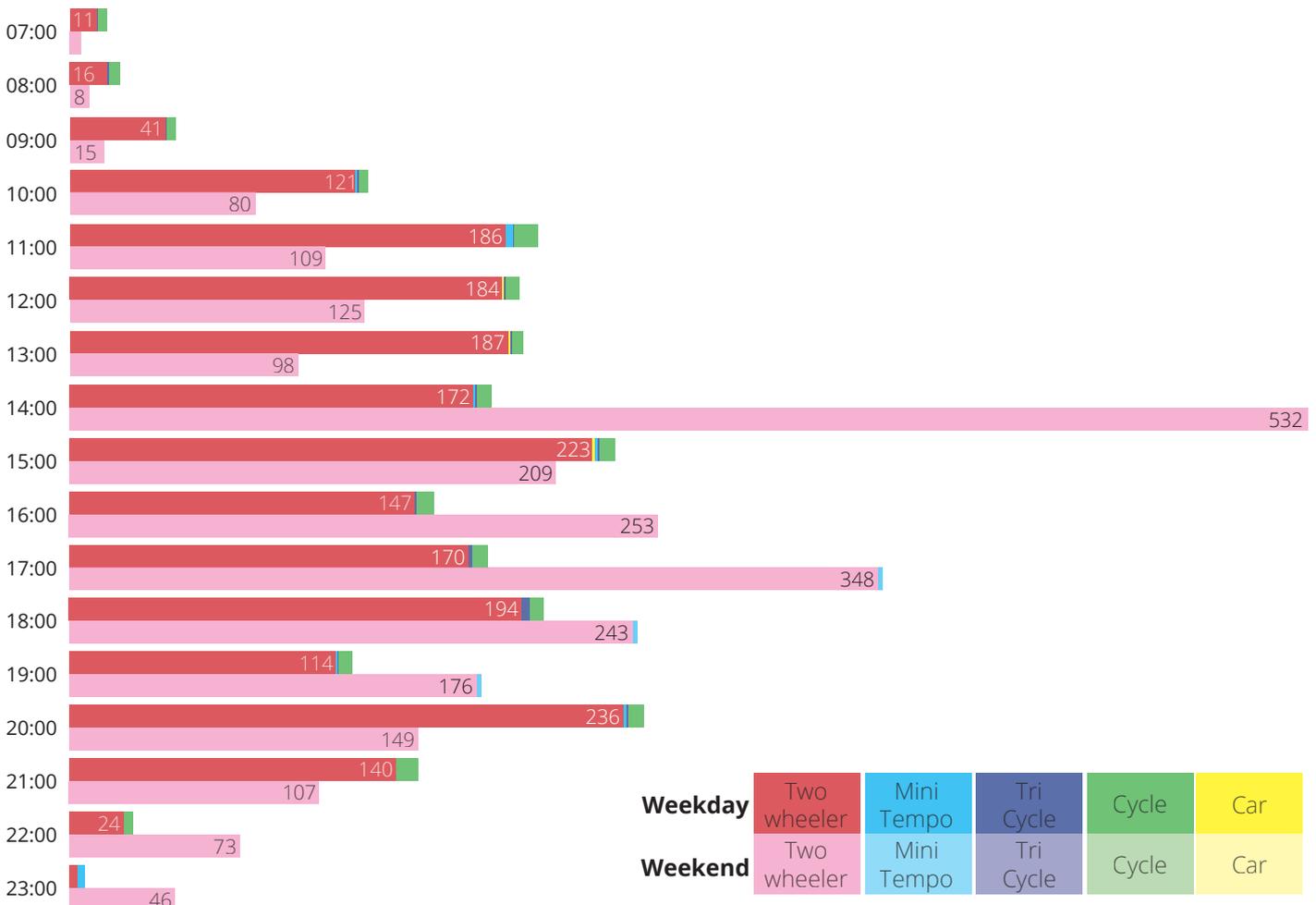


It is also useful to take into account frequency and location of any loading & unloading activities if there are commercial building uses along the stretch.

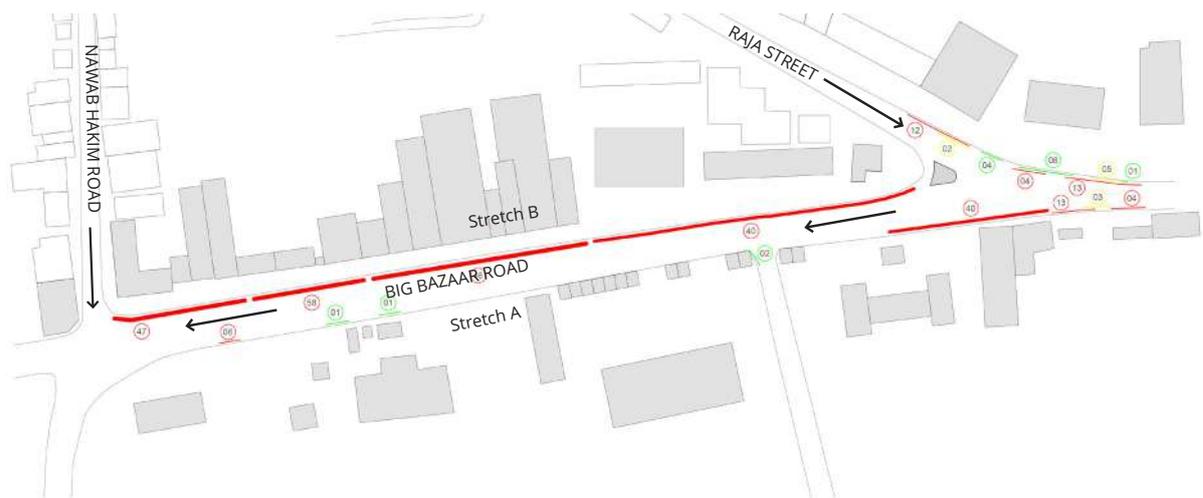
This data will help determine the quantum of parking spaces to be allocated in the street RoW. Additionally, it would also be useful to scan for alternate locations within 500 metres where parking can be relocated temporarily if possible.

\* 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

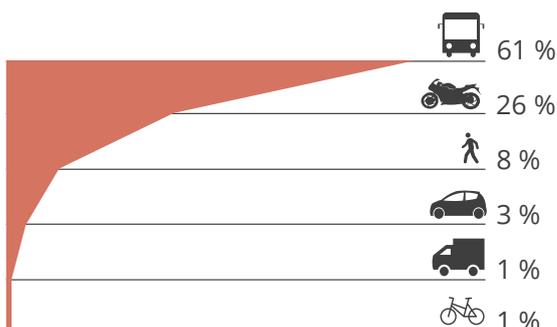


### Perception on accessibility, navigation & road safety

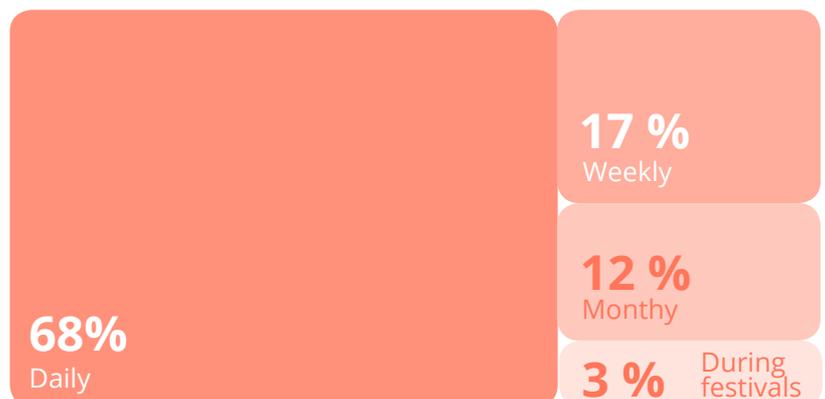
Determining user perception towards driving at the intersection; ease of crossing for pedestrians; means of reaching the stretch, and frequency & purpose of visiting the stretch will help ascertain if design elements to address such issues need to be included.

### Sample response data

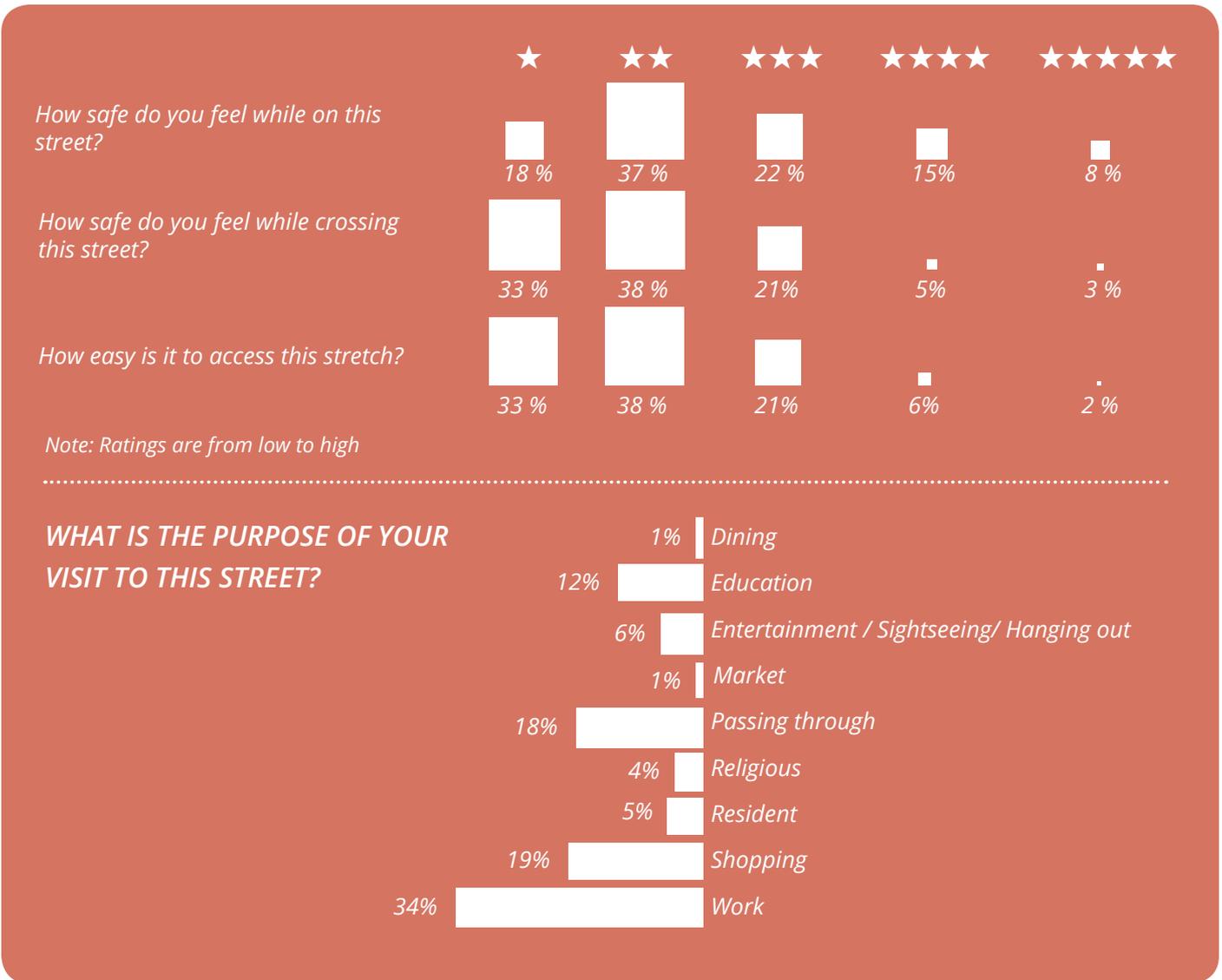
#### HOW DID YOU REACH THIS STREET?



#### HOW OFTEN DO YOU VISIT THIS STREET ?



## Sample response data



## RELEVANT STANDARDS AND THUMB RULES

### Standards for carriage way lane widths

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

#### Notes

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

Source: IRC 86 - 1983

Lane widths may be reduced to 2.75 metres as a traffic calming measure.

### ***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 refuge, adequate width of the median must be provided.

*Source: IRC 103:2012*

### ***Pedestrian refuge widths***

- Width of median to accommodate refuge island should be an absolute minimum of 1200 mm
- In the case of a staggered crossing arrangement to prevent two wheelers from using the refuge island, the minimum clear width between guard rails must be 2 metres to allow two wheelchair users to pass one another.

*Source: IRC 103:2012*

### ***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 = 12 metres
- It may be reduced to 6 metres in residential areas to slow down turning buses, trucks etc.

| Type of Vehicle   | Length (metre) | Width (metre)     | Height (metre)    | Turning circle radius (metre) |
|---|----------------|-------------------|-------------------|-------------------------------|
| Motorcycle  | 2.20           | 0.70              | 1.00 <sup>2</sup> | 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 <sup>1</sup> | 6.10                          |
| • 7.5 t   | 7.00           | 2.50              | 2.40 <sup>1</sup> | 7.00                          |
| • 16 t  | 8.00           | 2.50              | 3.00 <sup>1</sup> | 8.00                          |
| • 22 t (+16 t trailer)  | 10.00          | 2.50              | 3.00 <sup>1</sup> | 9.30                          |
| Refuse Collection vehicle   |                |                   |                   |                               |
| • Standard 2 axle vehicle (4 x 2)   | 7.64           | 2.50              | 3.30 <sup>1</sup> | 7.80                          |
| • Standard 3 axle vehicle (6 x 2 or 6 x 4)  | 1.45           | 2.50              | 3.30 <sup>1</sup> | 9.25                          |
| Fire engine   | 6.80           | 2.50              | 2.80 <sup>1</sup> | 9.25                          |
| Furniture van   | 9.50           | 2.50              | 2.80 <sup>1</sup> | 9.25                          |
| (with trailer)  | 18.00          |                   |                   |                               |
| Standard bus I  | 11.00          | 2.50 <sup>3</sup> | 2.95              | 10.25                         |
| Standard bus II   | 11.40          | 2.50 <sup>3</sup> | 3.05              | 11.00                         |
| Standard vehicle - Bus  | 11.00          | 2.50 <sup>3</sup> | 2.95              | 11.20                         |
| Standard vehicle - Articulated Bus  | 17.26          | 2.50 <sup>3</sup> | 4.00              | 10.50 - 11.25                 |
| Standard Articulated Truck  | 18.00          | 2.50 <sup>4</sup> | 4.00              | 12.00 <sup>5</sup>            |
| Tractor   |                | 2.50 <sup>4</sup> | 4.00              |                               |
| Trailer   |                | 2.50 <sup>4</sup> | 4.00              |                               |
| Maximum values of the road regulations  |                |                   |                   |                               |
| 2 axle vehicle (4 x 2)  | 12.00          | 2.50 <sup>4</sup> | 4.00              | 12.00                         |
| Vehicle with more than 2 axles  | 12.00          | 2.50 <sup>4</sup> | 4.00              | 12.00                         |
| Tractor with semi-trailer   | 15.00          | 2.50 <sup>4</sup> | 4.00              | 12.00                         |
| Articulated Bus   | 18.00          | 2.50 <sup>4</sup> | 4.00              | 12.00                         |
| Trucks with trailer   | 18.00          | 2.50 <sup>4</sup> | 4.00              | 12.00                         |
| <sup>1</sup> . Height of drivers cab<br><sup>2</sup> . Total height with driver, about 2 metres<br><sup>3</sup> . With wing mirrors, 2.95 metres<br><sup>4</sup> . Without wing mirrors<br><sup>5</sup> . Turning circle radius adjusted up to maximum as per regulations |                |                   |                   |                               |

Source: Street design guidelines UTTIPEC DDA 2009

Additionally, turning radius may be reduced up to 3 metres in urban roads to reduce the speed of turning vehicles and make it more safer for pedestrians to cross at intersections.

### **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.

|                                 |  |
|---------------------------------|--|
| Residential areas               | Spacing Range : Every 80-250 metres<br>Coordinated with entry points of complexes;<br>location of bus / train stops, public facilities<br>etc. |
| Commercial / Mixed use areas    | Spacing Range : Every 80-150 metres  |
| High Intensity Commercial areas | Pedestrianization if possible  |

Source: IRC 103:2012

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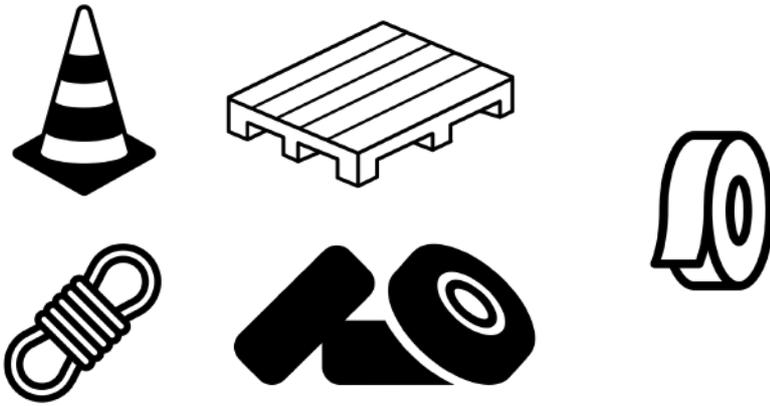
## **KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION**

- *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



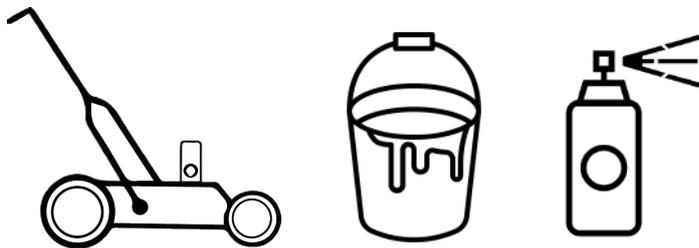
## 1 *RoW Demarcation*



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

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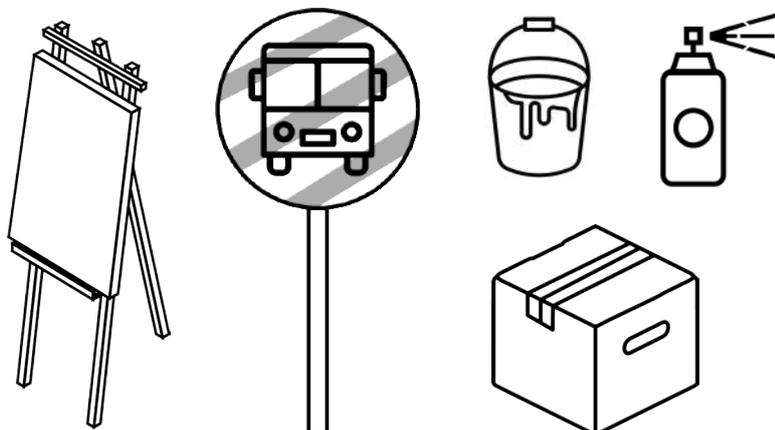
## 2 *Surface Marking*



- 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



# 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.

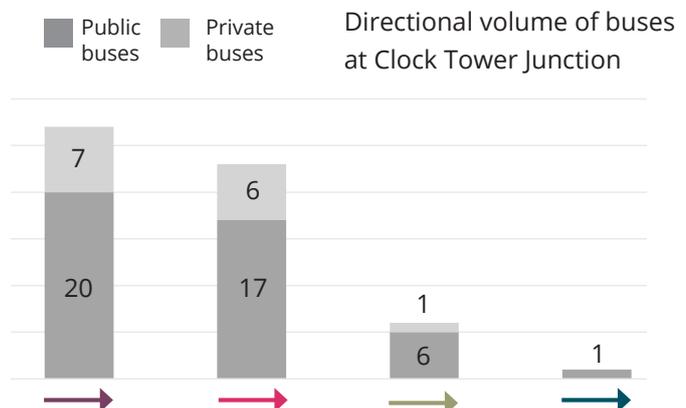
Identify the peak hour and count the number of passengers waiting during the peak hours. Can check with traffic police or any shops/ vendors nearby for peak hour information.

#### **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



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## USER SURVEYS

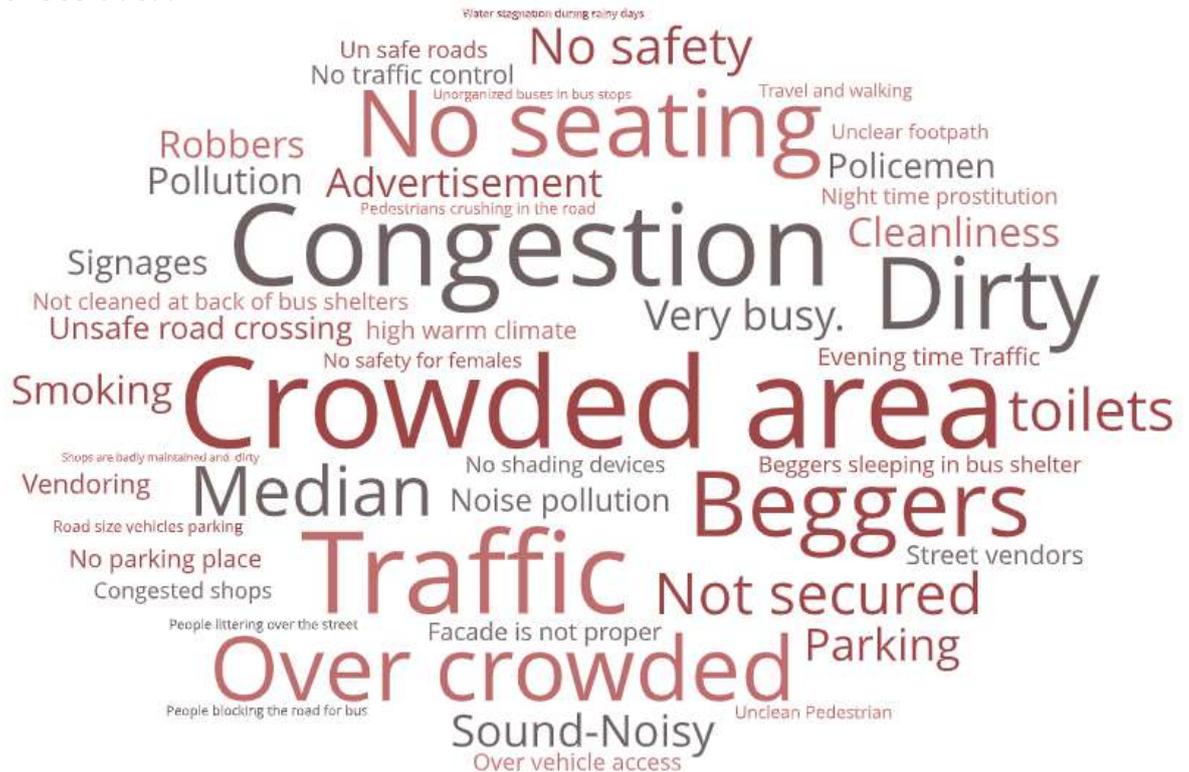
### Issues and Preferences at the bus stop

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:



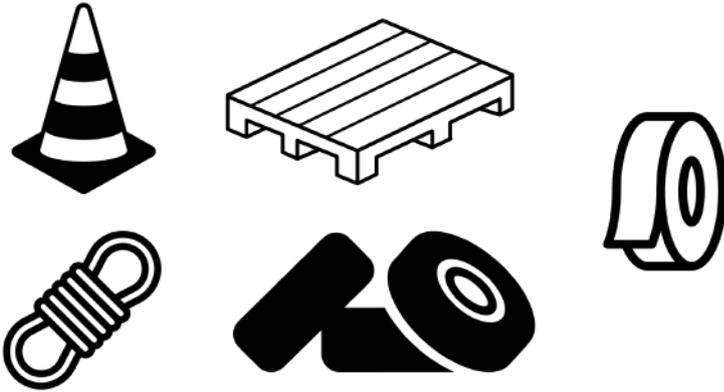
## KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *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

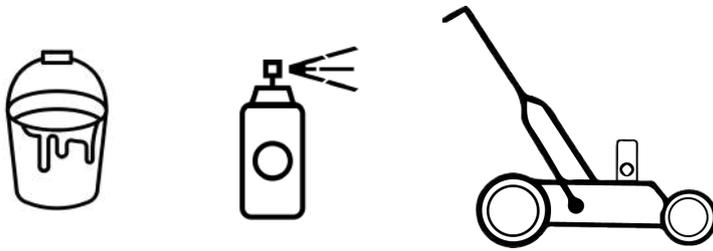


## 1 *RoW Demarcation*



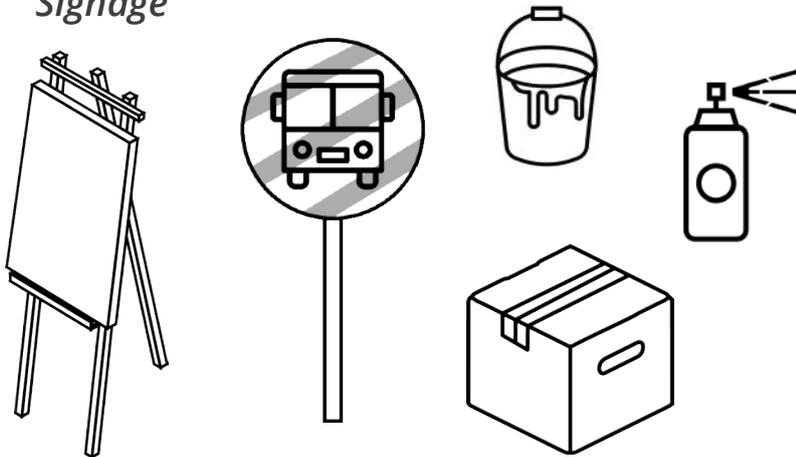
- Traffic cones
- Delineators
- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

## 2 *Surface Marking*



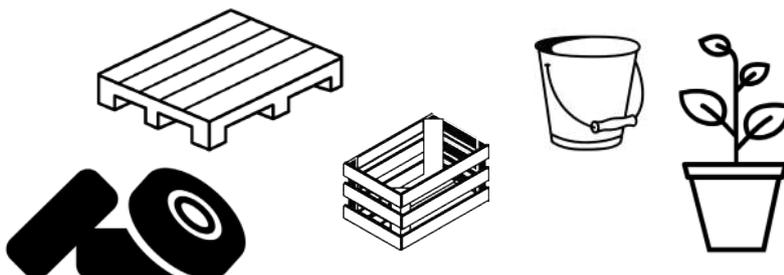
- Acrylic distemper paint
- Floor coat emulsion paint
- Water based epoxy paint
- Thermoplastic paint
- Spray paint
- Aerosol line marking machine

## 3 *Signage*



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

## 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**

**LANDSCAPING/ PLANTING**

**STATIONARY ACTIVITY ZONES**

**LIGHTING**

**ART IN THE STREET**

## REQUIRED DATA AND MAPPINGS

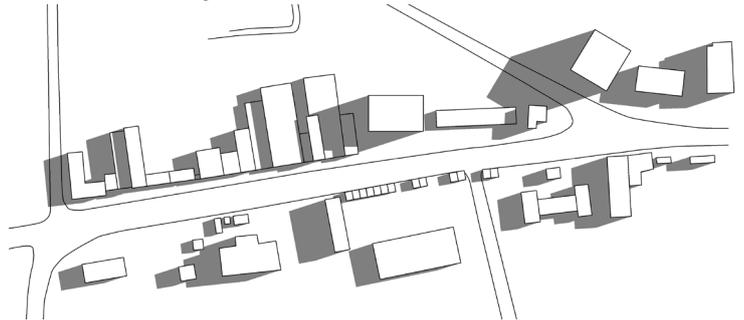


### ***Building heights & orientation***

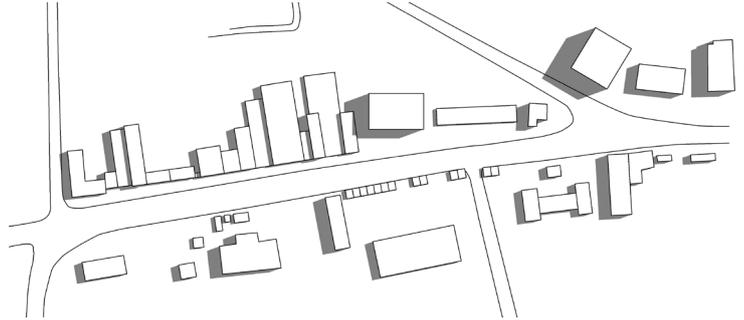
Recording the height of all the buildings on the stretch to get a sense of average heights helps to understand the massing and enclosure when coupled with RoW and whether the building's cast a shadow on the street thereby lending shade to the street users.

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

8 am on 19th July 2019



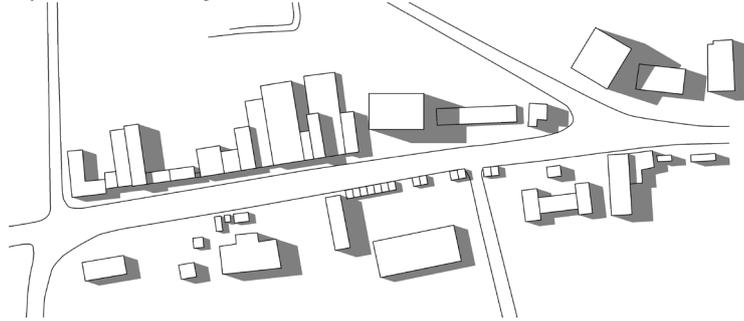
10 am on 19th July 2019



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



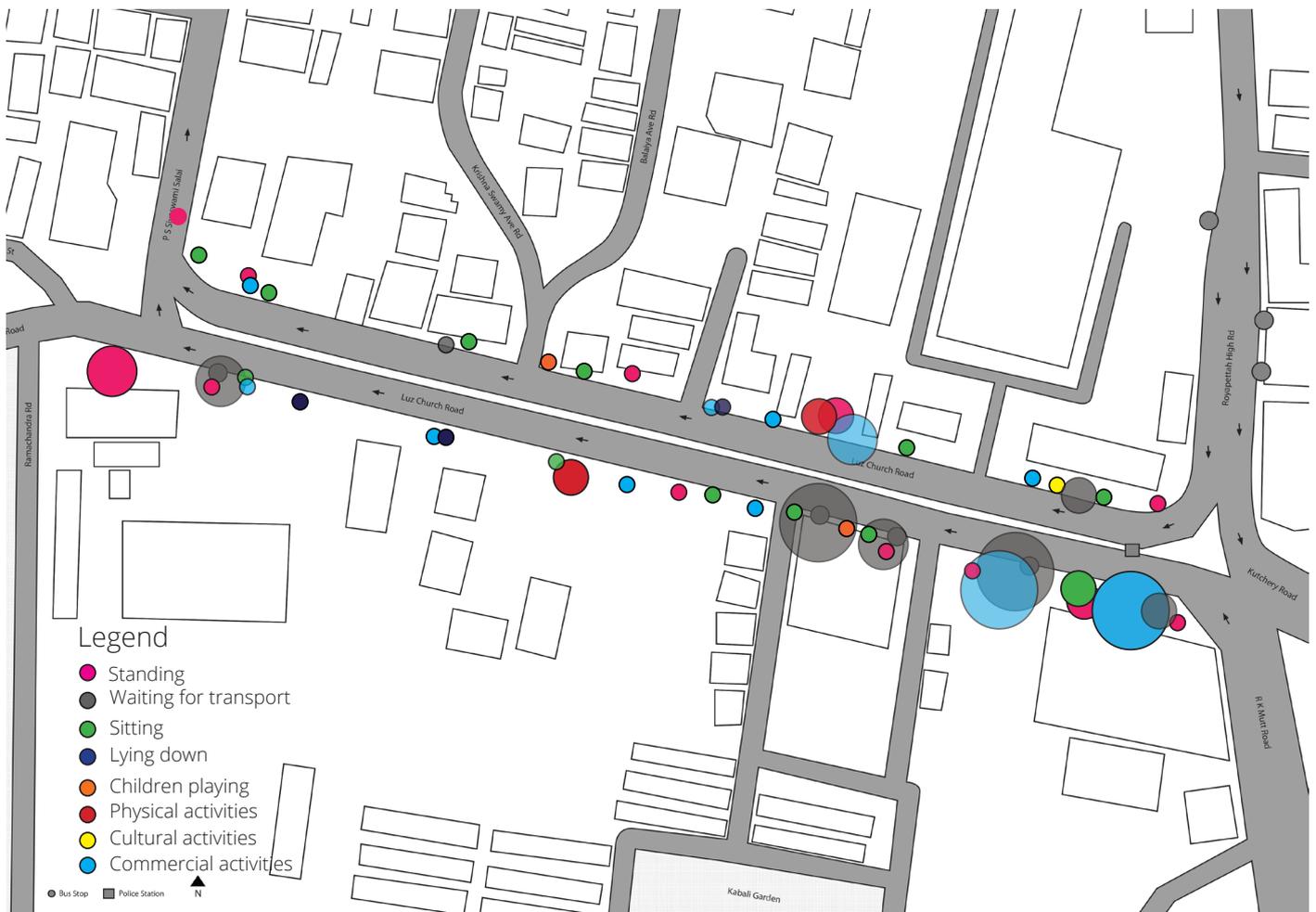


## Activity mapping

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

| Time     | Direction                 | 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

| Time     | Direction                 | 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*

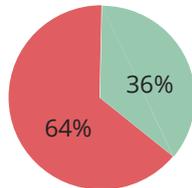
### Sample mapping



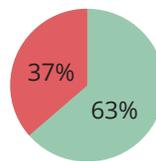
#### At Townhall junction

← Towards Oppanakara Street

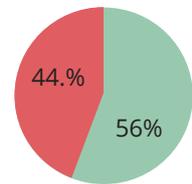
→ Towards Railway Station



12:30 to 12:40  
**Total Count: 342**

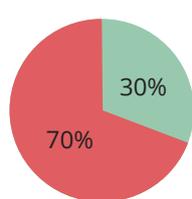


16:00 to 16:10  
**Total Count: 224**

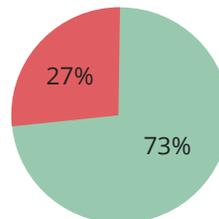


18:00 to 18:10  
**Total Count: 305**

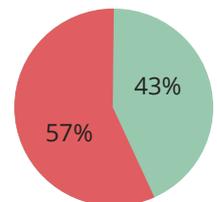
#### At Clock Tower junction



12:20 to 12:30  
**Total Count: 325**



16:50 to 17:00  
**Total Count: 459**



18:00 to 18:10  
**Total Count: 372**

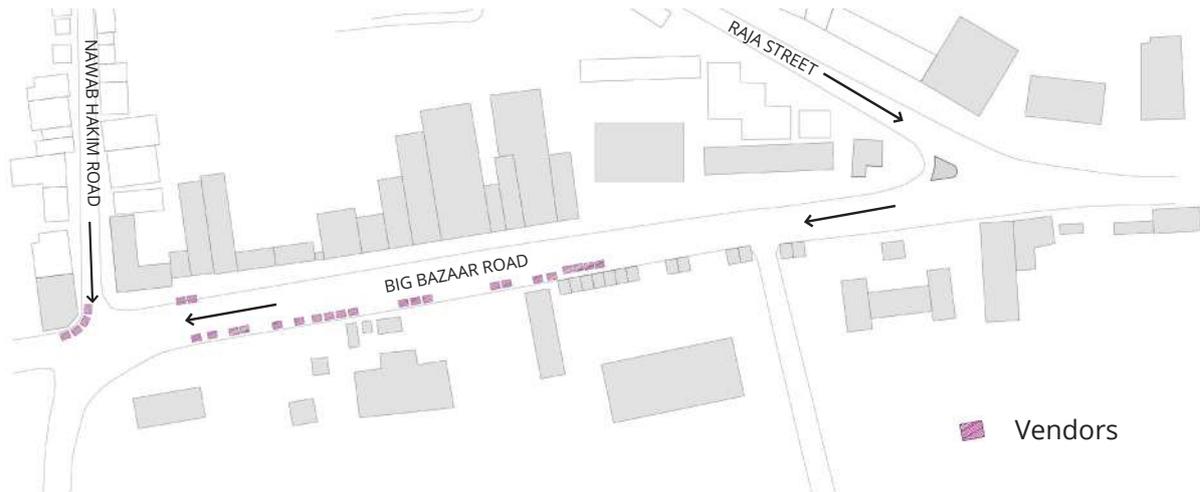
## Vendor mapping

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



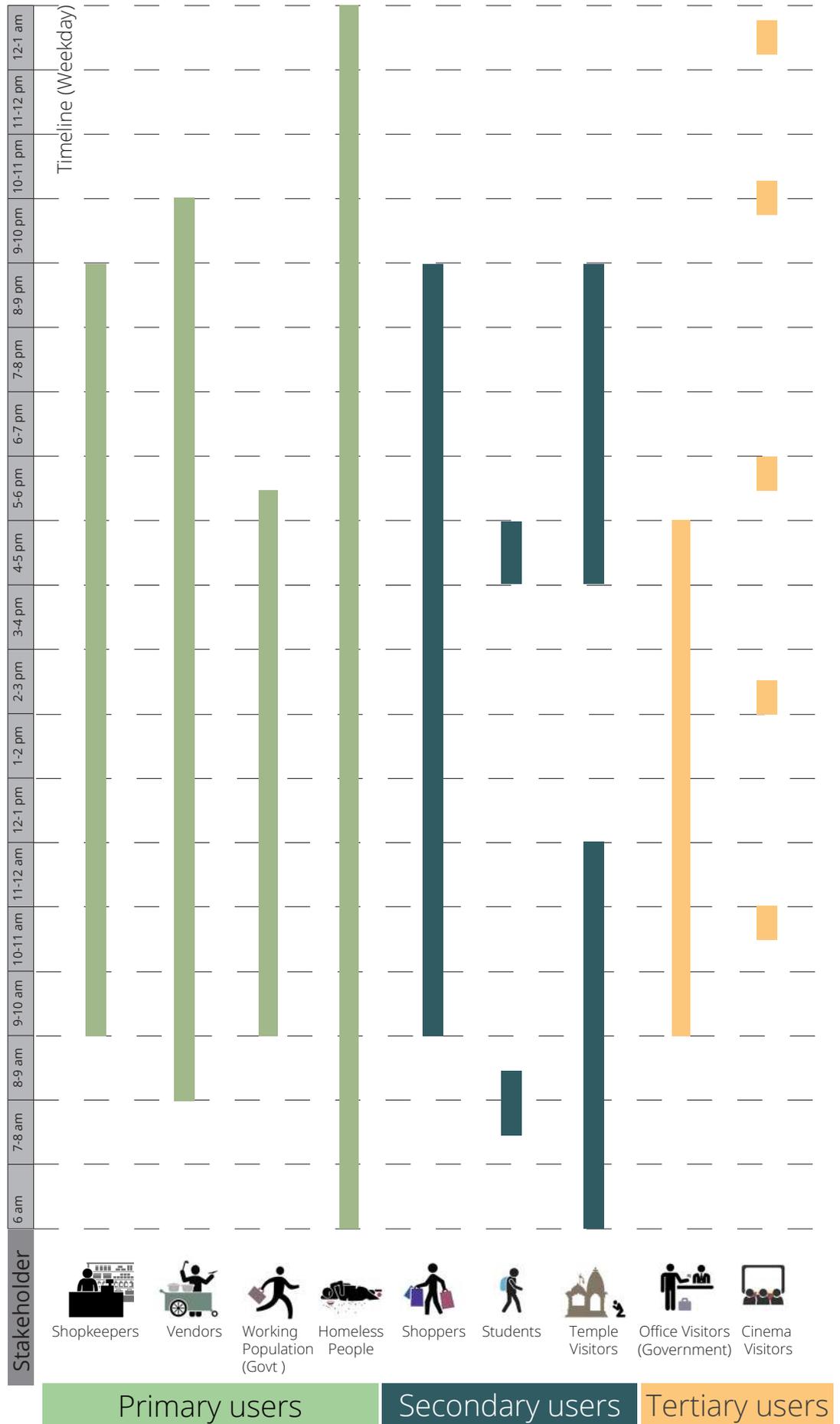
## User group analysis

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



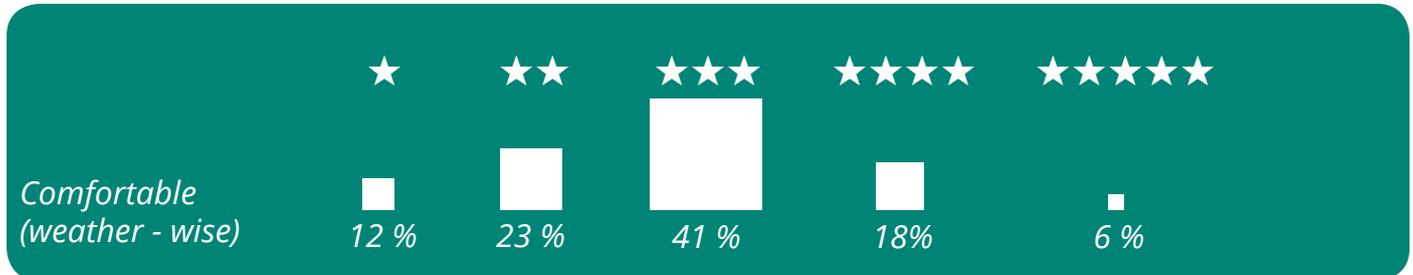
## USER SURVEYS

### 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



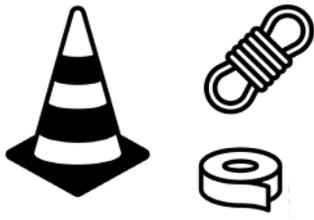
## KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *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

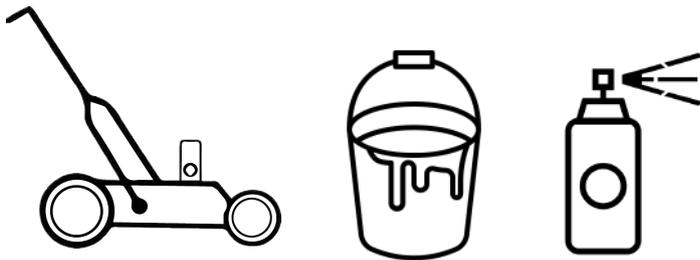


**1** *RoW Demarcation*



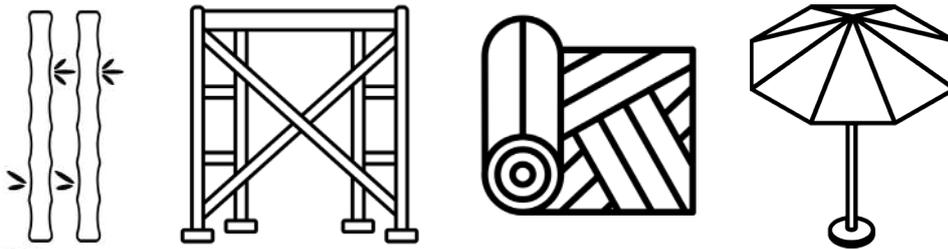
- Traffic cones
- Delineators
- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

**2** *Surface Marking*



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

**3** *Shade Structures*



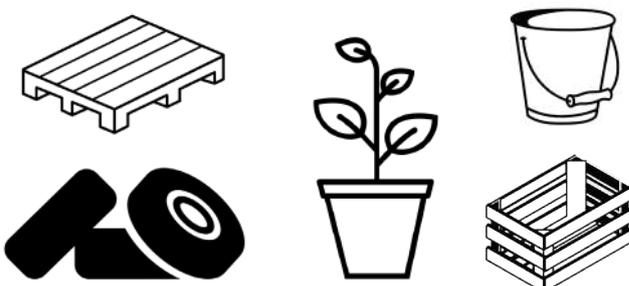
- GI/ Steel pipes
- Bamboo Poles
- Casuarina Poles
- Fabric
- Canvas
- Reed/ Cane mats

**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.

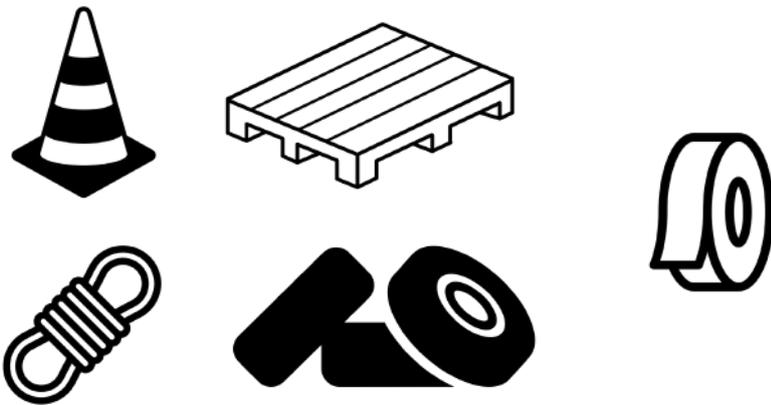
## KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *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



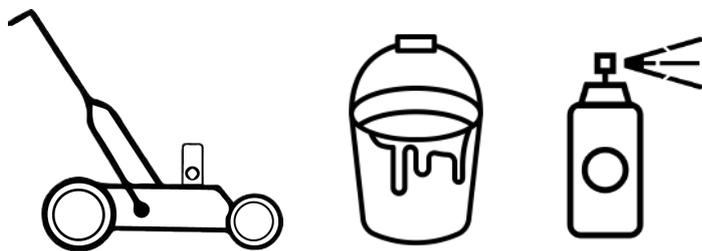
## 1 *RoW Demarcation*



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

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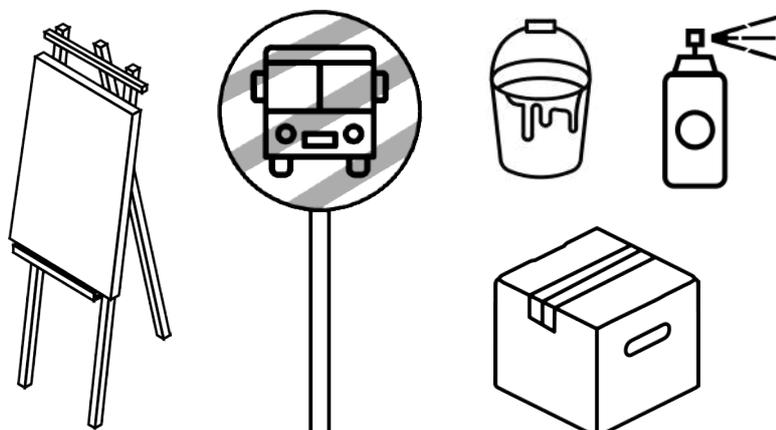
## 2 *Surface Marking*



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

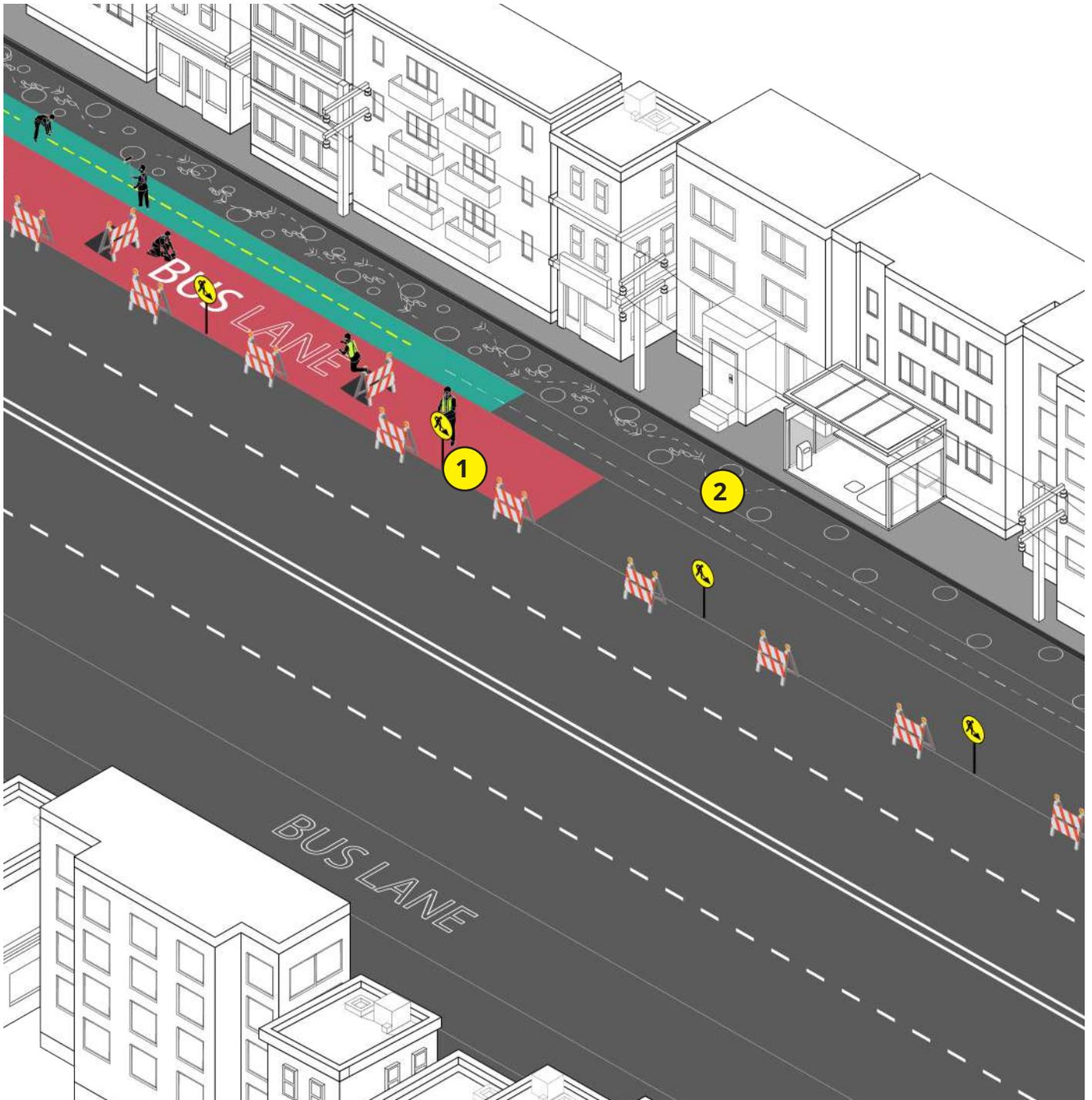
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## 3 *Signage*



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



# ANNEXURES

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## **MAPPING TEMPLATES**

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

## **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 irrespective of the time it takes to reach this count. Pedestrians are recorded in the worksheet using the following abbreviations-

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           |  |
| <b>TOTAL</b> |  |

|              |  |
|--------------|--|
| MC           |  |
| MA           |  |
| MS           |  |
| FC           |  |
| FA           |  |
| FS           |  |
| <b>TOTAL</b> |  |

|              |  |
|--------------|--|
| MC           |  |
| MA           |  |
| MS           |  |
| FC           |  |
| FA           |  |
| FS           |  |
| <b>TOTAL</b> |  |

|              |  |
|--------------|--|
| MC           |  |
| MA           |  |
| MS           |  |
| FC           |  |
| FA           |  |
| FS           |  |
| <b>TOTAL</b> |  |

## 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 at least 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 |           |   |             |   |     |   |      |   |            |   |         |   |       |   |
| 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 |           |   |             |   |     |   |      |   |            |   |         |   |       |   |
| <b>TOTAL</b>  |           |   |             |   |     |   |      |   |            |   |         |   |       |   |

## 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 redesigning 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 |        |        |             |        |        |        |         |        |                 |        |

|              |  |  |  |  |  |  |  |  |  |  |
|--------------|--|--|--|--|--|--|--|--|--|--|
| <b>TOTAL</b> |  |  |  |  |  |  |  |  |  |  |
|--------------|--|--|--|--|--|--|--|--|--|--|

## 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.



### **Police Officers**

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



### **Residents' Welfare**

**Association (RWA)** of nearby neighbourhoods.



**Motorists**



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



**Shopkeepers** who own or work at shops in the stretch and temporary **street vendors** who keep temporary 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.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 06.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 07.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 08.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 09.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 10.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 11.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 12.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 13.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 14.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 15.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 16.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 17.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |
| 18.        |        |        |        |         |          |          |         |        |        |        |        |        |        |        |        |         |          |          |         |  |

## 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.
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 | △      |        |
|                       |        |        |
|                       |        |        |
|                       |        |        |
|                       |        |        |
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|                       |        |        |
|                       |        |        |
| <b>Total</b>          |        |        |

## 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 |
|--------------|--------|--------------|---------------|---------------|--------------------|------------------|
|              |        |              |               |               |                    |                  |
|              |        |              |               |               |                    |                  |
|              |        |              |               |               |                    |                  |
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|              |        |              |               |               |                    |                  |
| <b>Total</b> |        |              |               |               |                    |                  |

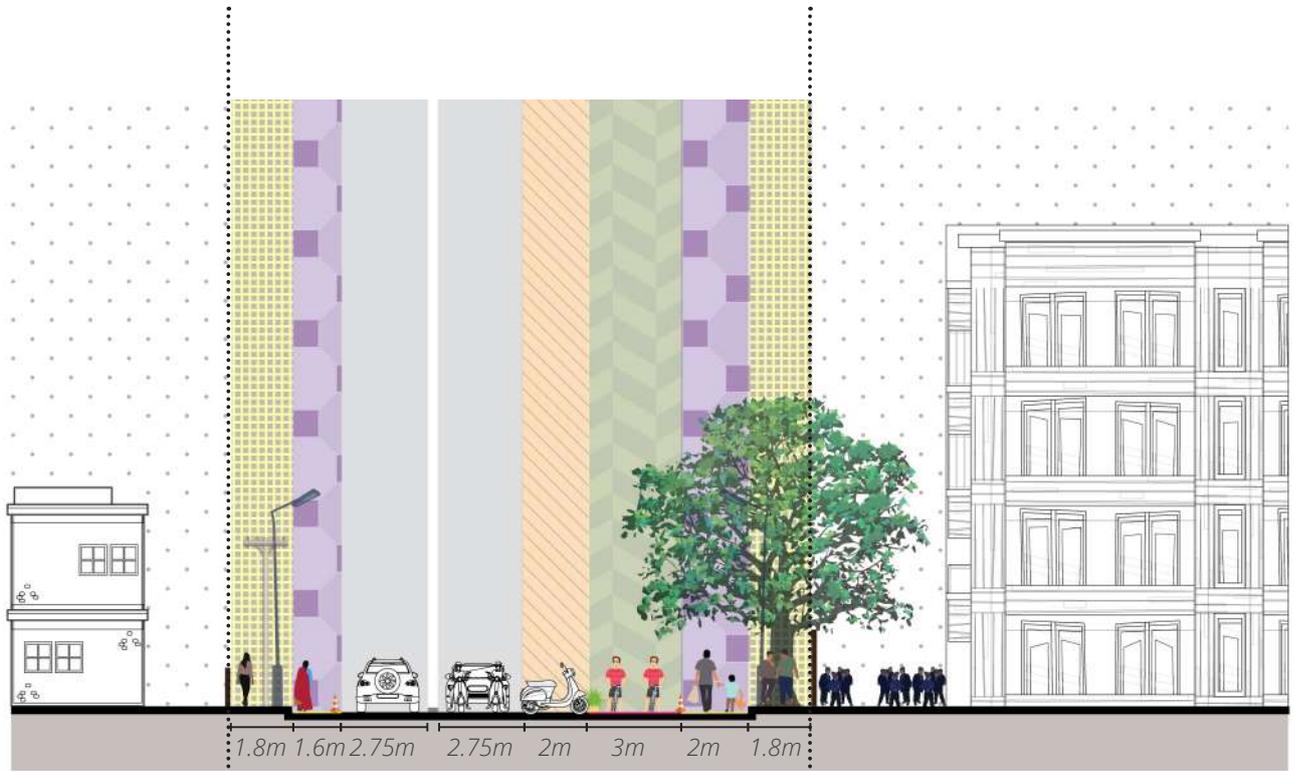
**SAMPLE STREET SECTIONS  
SHOWING PROPOSED TACTICAL  
URBANISM INTERVENTIONS**

# 18 METRE RIGHT OF WAY



## 18 metre RoW *EXISTING SECTION*

-  Existing Sidewalk
-  Proposed Sidewalk
-  Cycle lanes
-  Carriage way
-  Parking Lane



Residential use



School/ College

**18 metre RoW PROPOSED SECTION - I**



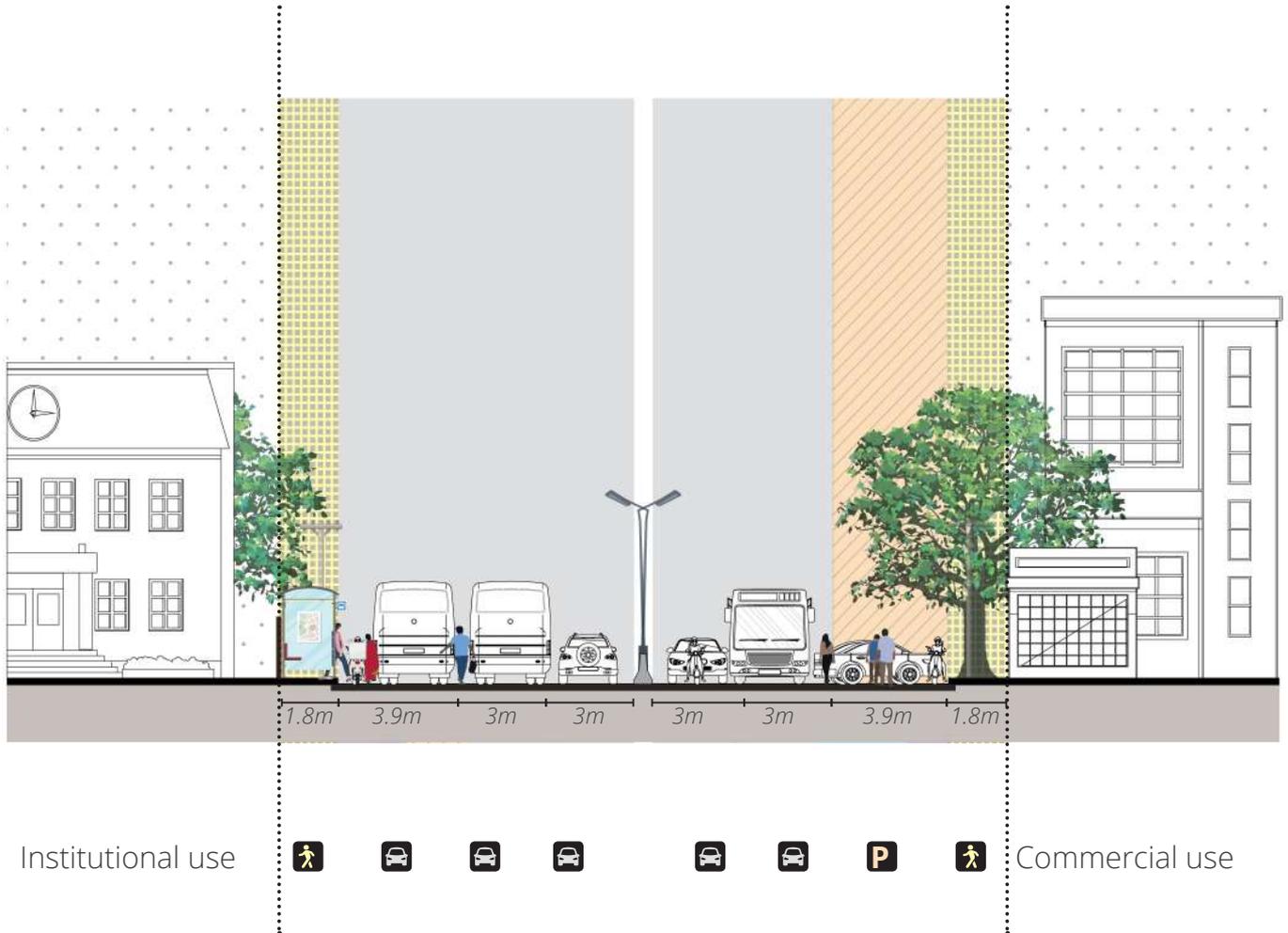
Residential use



School/ College

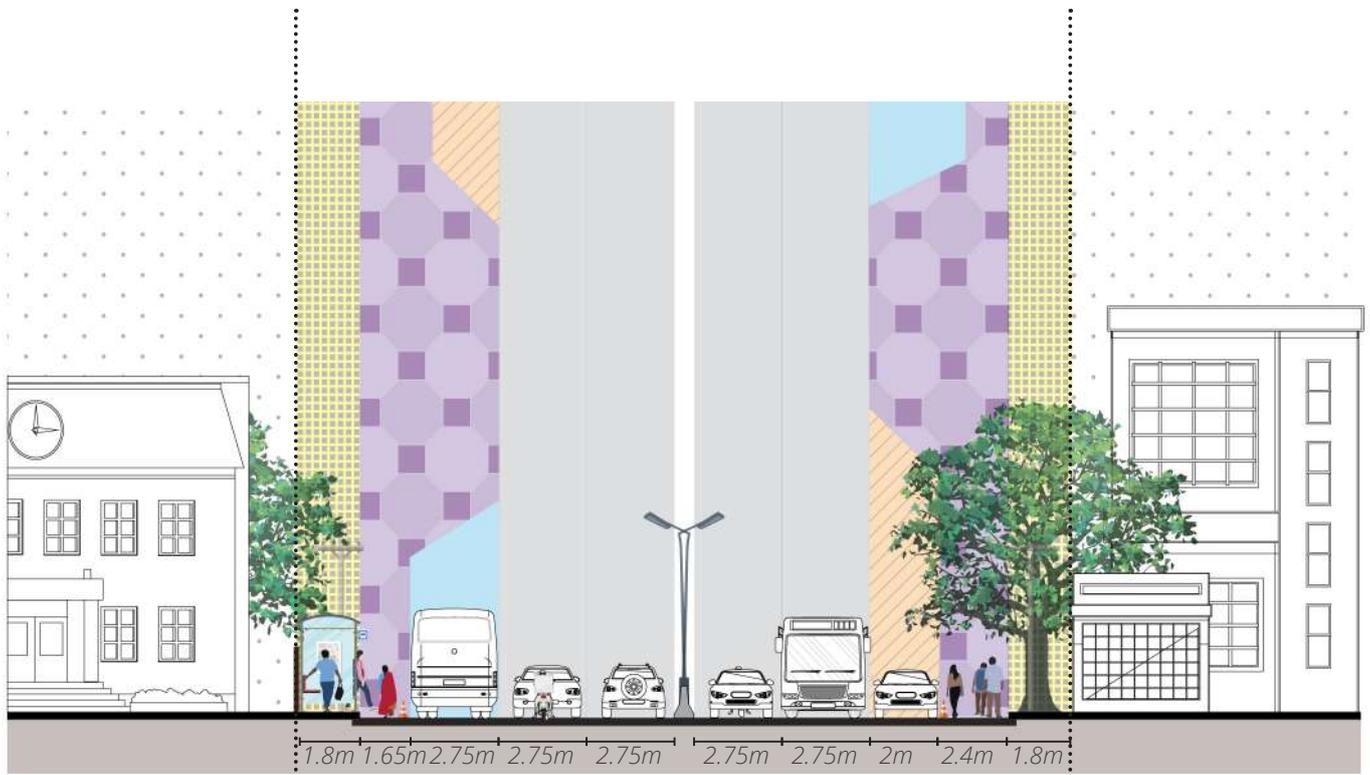
**18 metre RoW PROPOSED SECTION - II**

# 24 METRE RIGHT OF WAY



## 24 metre RoW *EXISTING SECTION*

-  Existing Sidewalk
-  Proposed Sidewalk
-  Cycle lanes
-  Bus bay
-  Carriage way
-  Parking Lane
-  Bus Lane



Institutional use



Commercial use

### 24 metre RoW PROPOSED SECTION - I



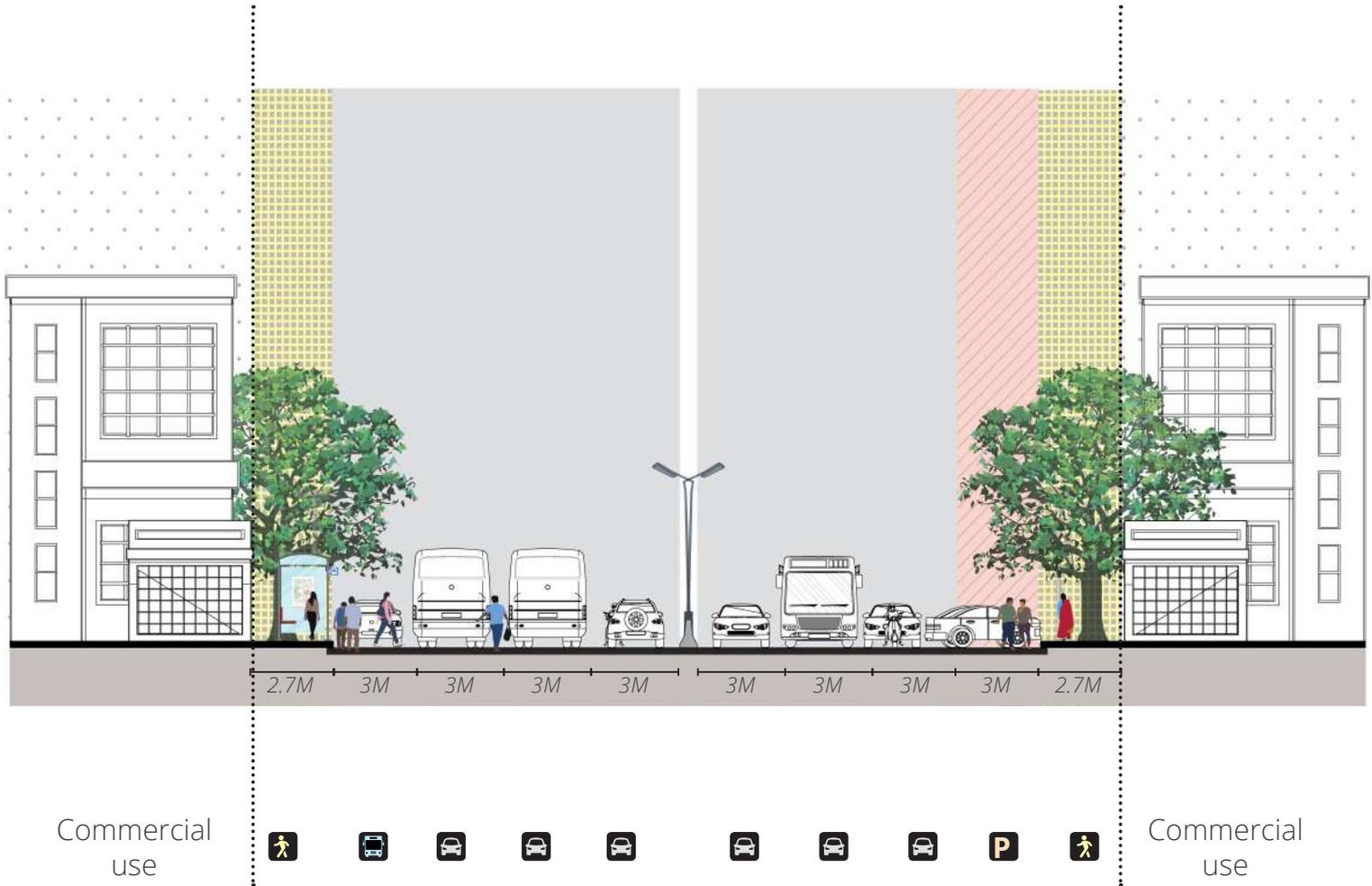
Institutional use



Commercial use

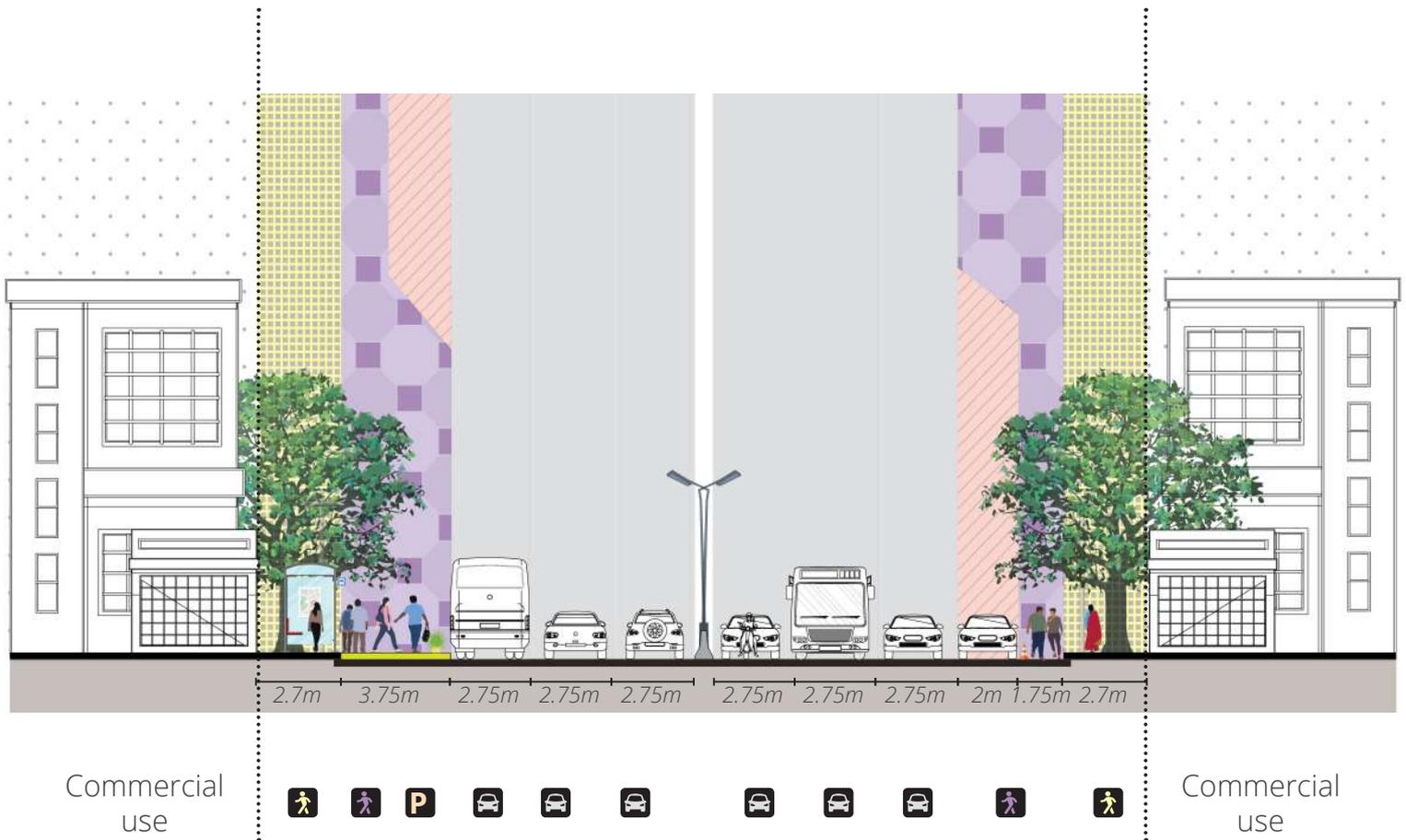
### 24 metre RoW PROPOSED SECTION - II

# 30 METRE RIGHT OF WAY



## 30 metre RoW *EXISTING SECTION*

-  Existing Sidewalk
-  Proposed Sidewalk
-  Cycle lanes
-  Bus bay
-  Carriage way
-  Parking Lane
-  Bus Lane



**30 metre RoW PROPOSED SECTION - I**



**30 metre 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:

| <i>S. no.</i> | <i>Particulars</i>                                     | <i>Unit</i> | <i>Per unit cost</i> | <i>Units required per kilometre</i> | <i>Cost estimate per kilometre</i> |
|---------------|--|-------------|----------------------|-------------------------------------|------------------------------------|
| 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               |
| <b>Total</b>  |  |             |                      |                                     | <b>INR 2,60,400 to 4,36,000</b>    |

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

# **TACTICAL URBANISM IN INDIA**

Case example fact sheets

# Coimbatore, Tamil Nadu

Big Bazaar Street



November 2019



## 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



Source: Yougal Tak, ICLEI

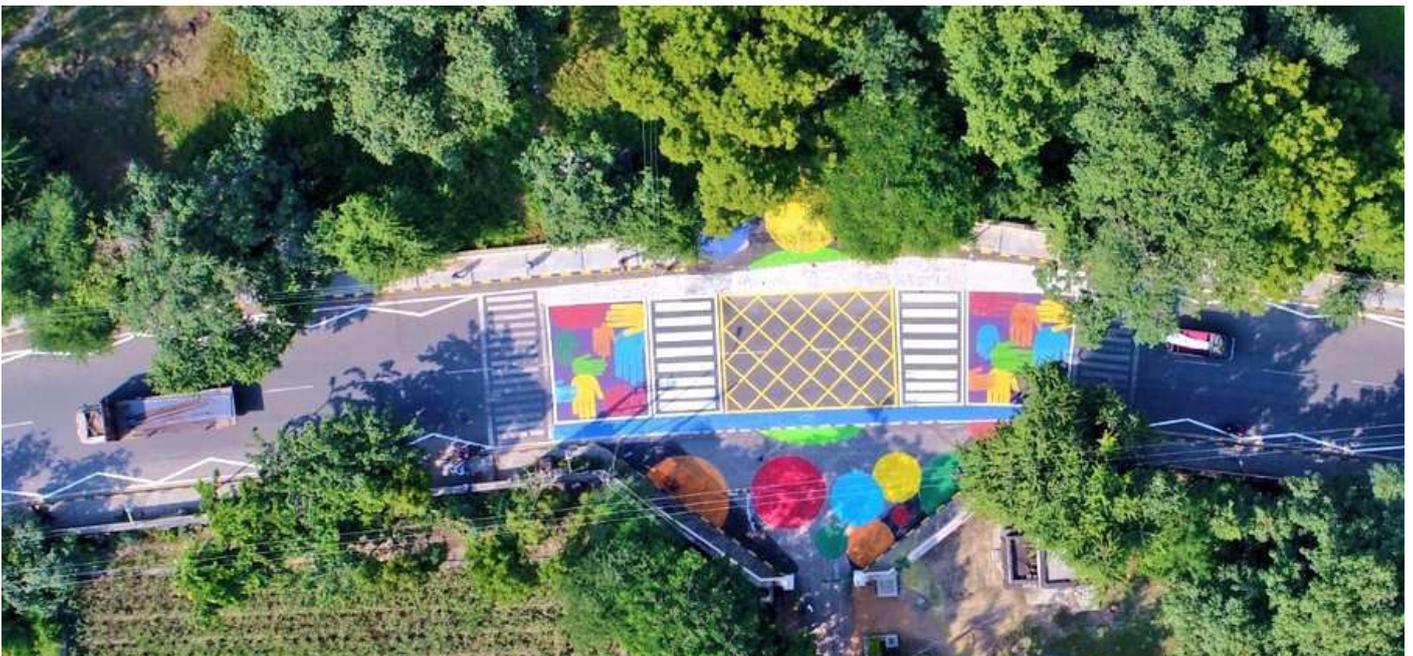
<https://udaipurtimes.com/administration/implementation-begins-first-tactical-intervention-under/c74416-w2859-cid170496-s10702.htm>

## 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 Municipal Corporation,  
Vidhya Bhawan College, Udaipur



## Ranchi, Jharkhand

M.G Road, Ranchi



September 2019



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

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

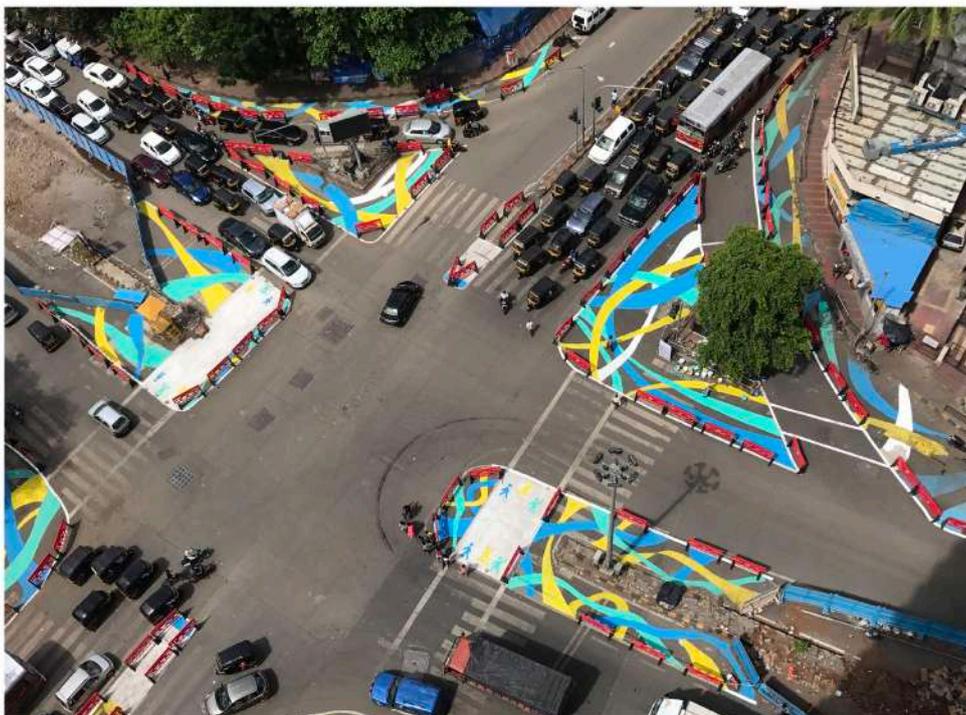


May 2017



## 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

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



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

# Mumbai, Maharashtra

HP junction



## 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**

|  |   |
|--|---|
| <b>Accessibility</b>                             | 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.   |
| <b>Active Edges/Frontages</b>                    | 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.  |
| <b>Amenity</b>                                   | 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.   |
| <b>Barrier-Free Design/<br/>Universal design</b> | Building and site design which is accessible to all people, regardless of age and abilities.  |
| <b>Block</b>                                     | 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.  |
| <b>Buffer</b>                                    | 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.  |
| <b>Building access</b>                           | The entry / exit points of a building for pedestrians & vehicles  |
| <b>Building line</b>                             | The line formed by the frontages of buildings along a street. The building line can be shown on a plan or section.  |
| <b>Building orientation</b>                      | The positioning of the building on site with respect to the street and the cardinal directions.   |
| <b>Bulb-Out</b>                                  | 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.  |
| <b>Bus priority lane</b>                         | 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 |
| <b>Circulation</b>                               | Movement patterns of people and goods. Includes pedestrians, cyclists, vehicular traffic, transit systems and freight.  |

|                                     |   |
|-------------------------------------|---|
| <b><i>Eyes on the street</i></b>    | 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, <i>The Death and Life of Great American Cities</i> (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'.                 |
| <b><i>Footpath</i></b>              | 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.   |
| <b><i>Frontage</i></b>              | The width of a single lot, measured parallel to the right-of-way.   |
| <b><i>Frontage zone</i></b>         | The area adjacent to the property line where transitions between the public sidewalk and the space within buildings occur. (also dead width)  |
| <b><i>Landmark</i></b>              | 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   |
| <b><i>Mapping</i></b>               | 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.   |
| <b><i>Mid-Block Connections</i></b> | 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. |
| <b><i>Mixed Use</i></b>             | 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).   |
| <b><i>Modal Split</i></b>           | 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.   |

|                              |  |
|------------------------------|--|
| <b><i>Node</i></b>           | <p>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.</p> <p>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)</p>  |
| <b><i>Para transit</i></b>   | <p>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.</p> |
| <b><i>Parking demand</i></b> | <p>Refers to the amount of parking that is estimated to be used at a particular time, place, and price.</p>  |
| <b><i>Pedestrian</i></b>     | <p>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.</p>  |
| <b><i>Pedshed</i></b>        | <p>The area within a 10-minute walk band around a train station. Pedsheds are ideal locations for relatively dense housing development.</p>  |
| <b><i>Placemaking</i></b>    | <p>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 is concerned with building both the settlement patterns and the communal capacity for people to thrive with each other and our natural world.</p>  |
| <b><i>Plaza</i></b>          | <p>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.</p>   |
| <b><i>Precinct</i></b>       | <p>An urban quarter; a distinct local area; an area with a defined boundary.</p>   |

|                                  |  |
|----------------------------------|--|
| <b><i>Primary Streets</i></b>    | 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.   |
| <b><i>Public Art</i></b>         | 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.   |
| <b><i>Public Realm</i></b>       | 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.  |
| <b><i>Right-of-way (RoW)</i></b> | 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.  |
| <b><i>Road hierarchy</i></b>     | 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. |
| <b><i>Spine</i></b>              | A street or streets along which a specific activity is concentrated.   |
| <b><i>Square</i></b>             | An urban space, landscaped or paved, and enclosed wholly or partly by buildings. Also referred to as a piazza, quadrangle, courtyard or plaza.   |
| <b><i>Stakeholder</i></b>        | A stakeholder is any person, organization, institution, social group, or society at large that has a stake of a particular space   |
| <b><i>Street furniture</i></b>   | 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.   |
| <b><i>Street reclaiming</i></b>  | Reusing the space saved through reduced car use to enhance the social, cultural and economic life of a neighbourhood.  |
| <b><i>Streetscape</i></b>        | 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.   |

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| <b><i>Traffic calming</i></b>          | Measures to reduce the speed of motor traffic, particularly in residential areas. They include education, enforcement and engineering (the three Es).  |
| <b><i>Transit</i></b>                  | 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.  |
| <b><i>User group</i></b>               | The different group of people who use the space  |
| <b><i>Visual preference survey</i></b> | A technique, patented by the American urban designer Anton Neleson, that involves showing people slides of places and asking them to rate them on a scale of plus 10 to minus 10.  |
| <b><i>Walkability</i></b>              | 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.         |
| <b><i>Way finding</i></b>              | 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. |

Ministry of Housing and Urban Affairs (MoHUA) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH are jointly implementing the technical cooperation project “Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)”, commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The project works with the three Smart Cities of Bhubaneswar, Coimbatore, and Kochi and respective state governments of Odisha, Tamil Nadu, and Kerala to promote low carbon mobility planning, and to plan and implement sustainable urban transport projects in the fields of public transport, non-motorised transport and modal integration.

India and Germany have agreed on a strategic partnership; **Green Urban Mobility Partnership (GUMP)** between MOHUA and BMZ and other relevant actors on the German and Indian sides. Within the framework of the partnership, EUR 1 billion is to be committed by the German side over 5 years for the implementation of corresponding projects within the framework of technical and financial cooperation. In the course of the intergovernmental consultations in November 2019, the German Government promised the Indian Government in particular support for the expansion of public transport. Projects with various executing agencies in the field of multimodal integration, using low-emission or zero-emission technologies and non-motorised transport are going to be promoted. The implementation of this agreement is to be accompanied by a corresponding policy dialogue between the Indian and German sides. In this way, India and Germany want to jointly achieve effective international contributions to fighting climate change.



**Ministry of Housing and Urban Affairs**  
Government of India