

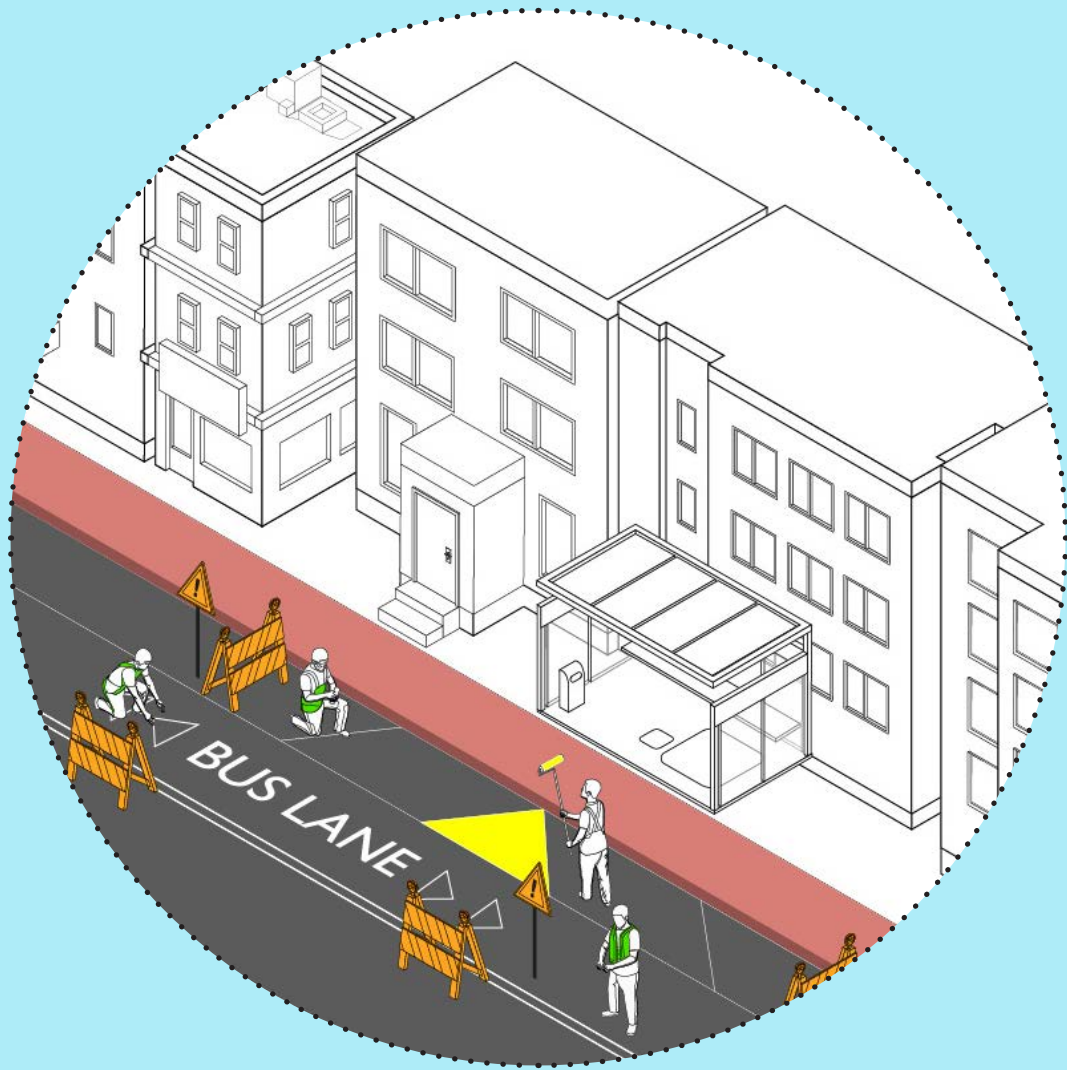
3





# 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

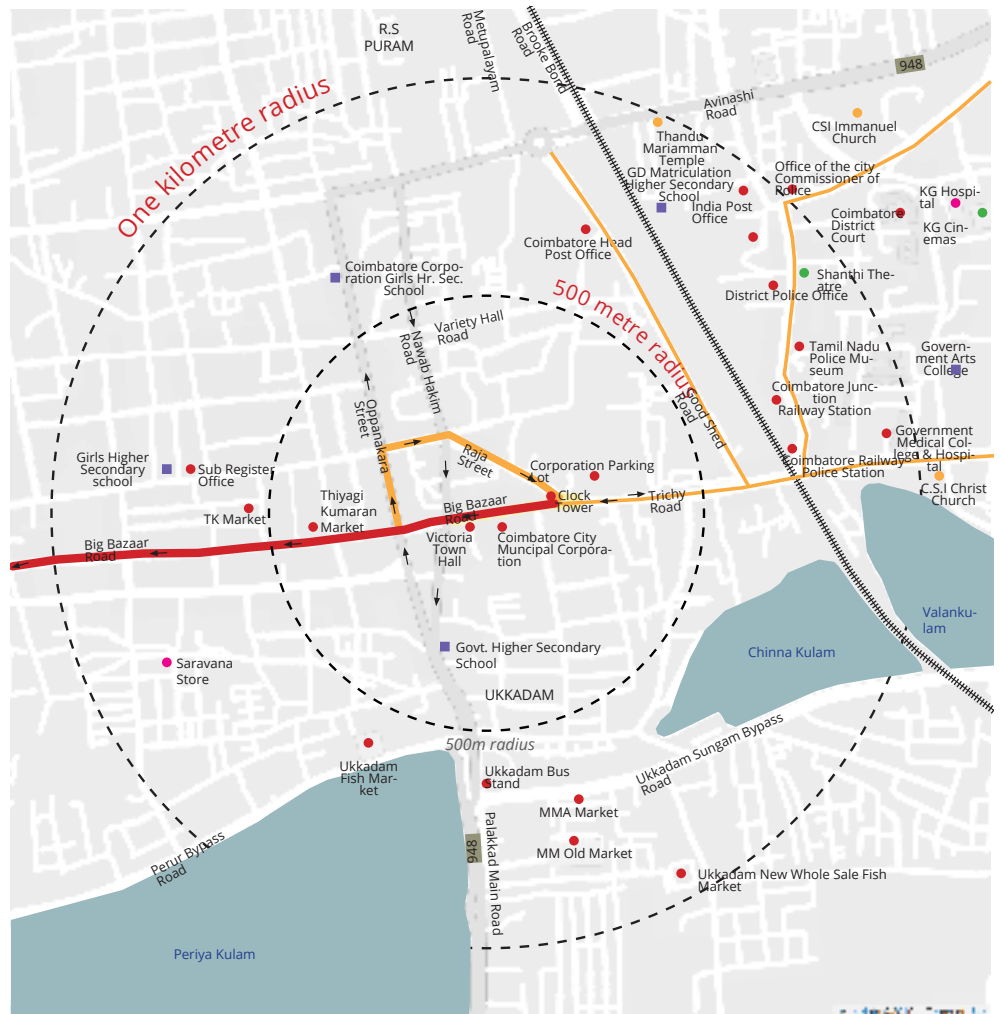


A map showing the major landmarks such as commercial, recreational, public amenities, healthcare, religious centres, institutional, transit hubs and movement pattern within one kilometre radius of the selected stretch or one kilometre extent on both sides of the selected stretch.

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

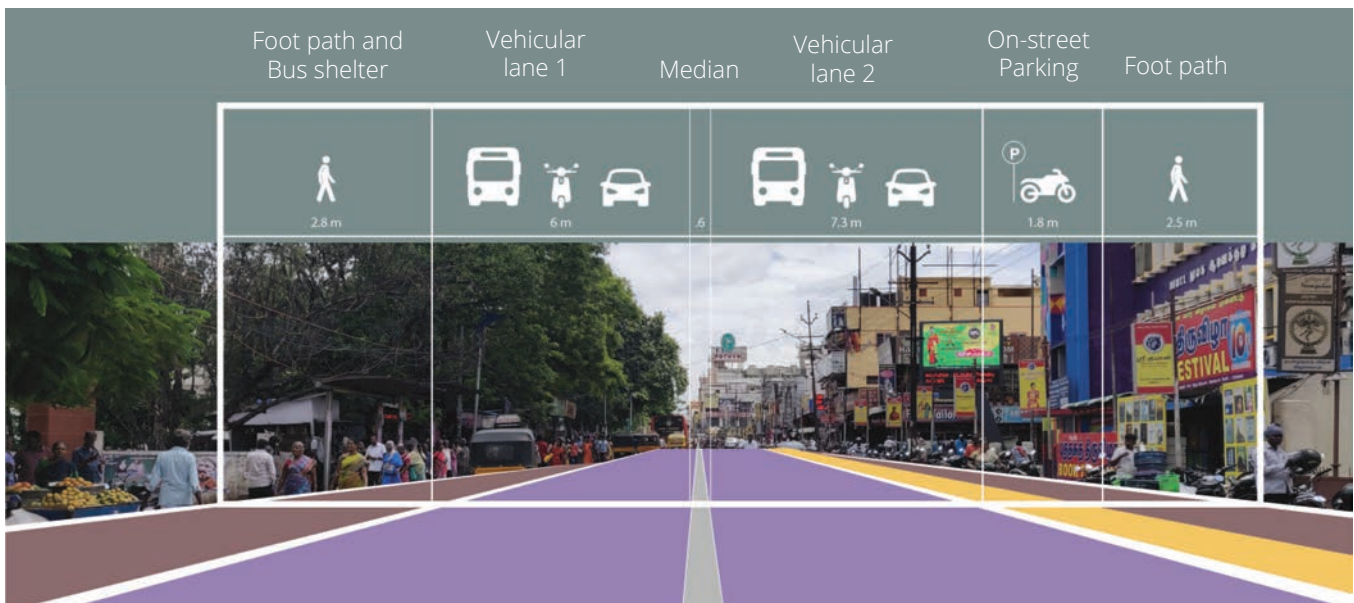


## Street Right of Way (RoW)

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.*



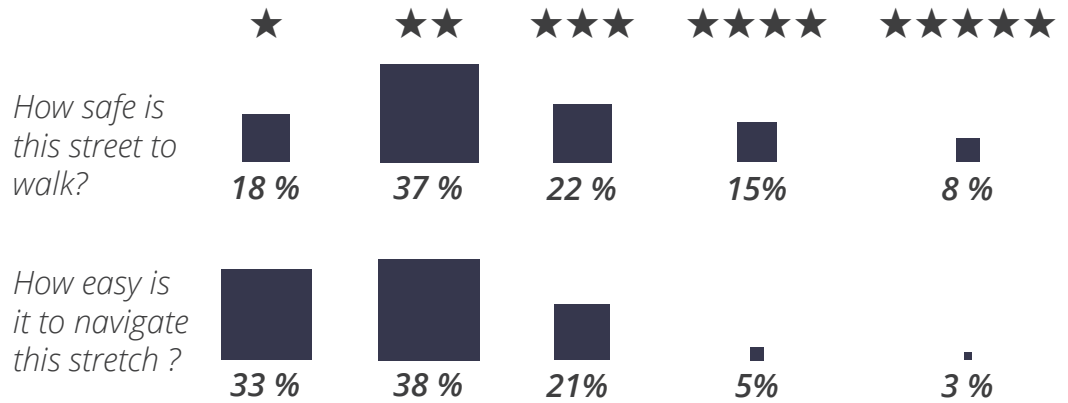


## USER SURVEYS

### 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

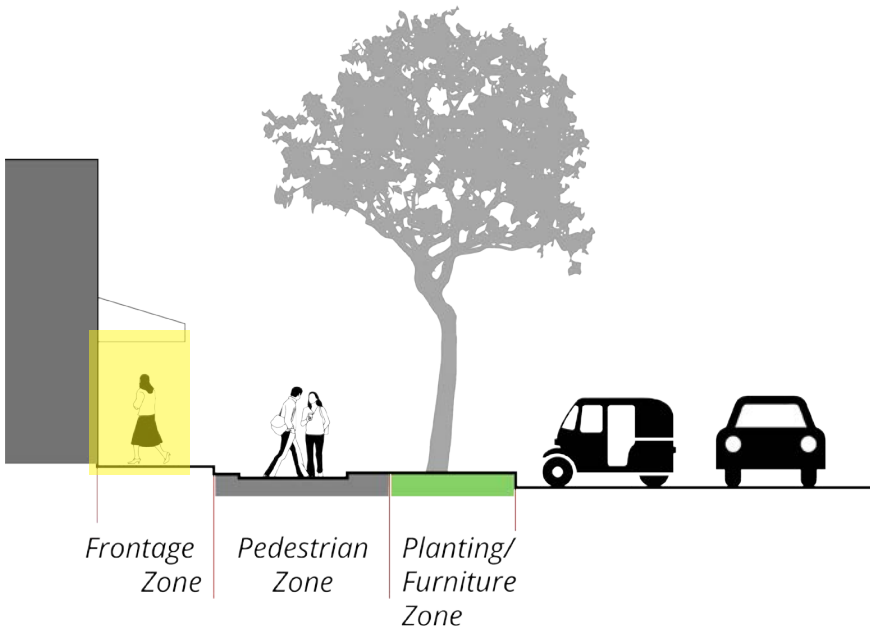
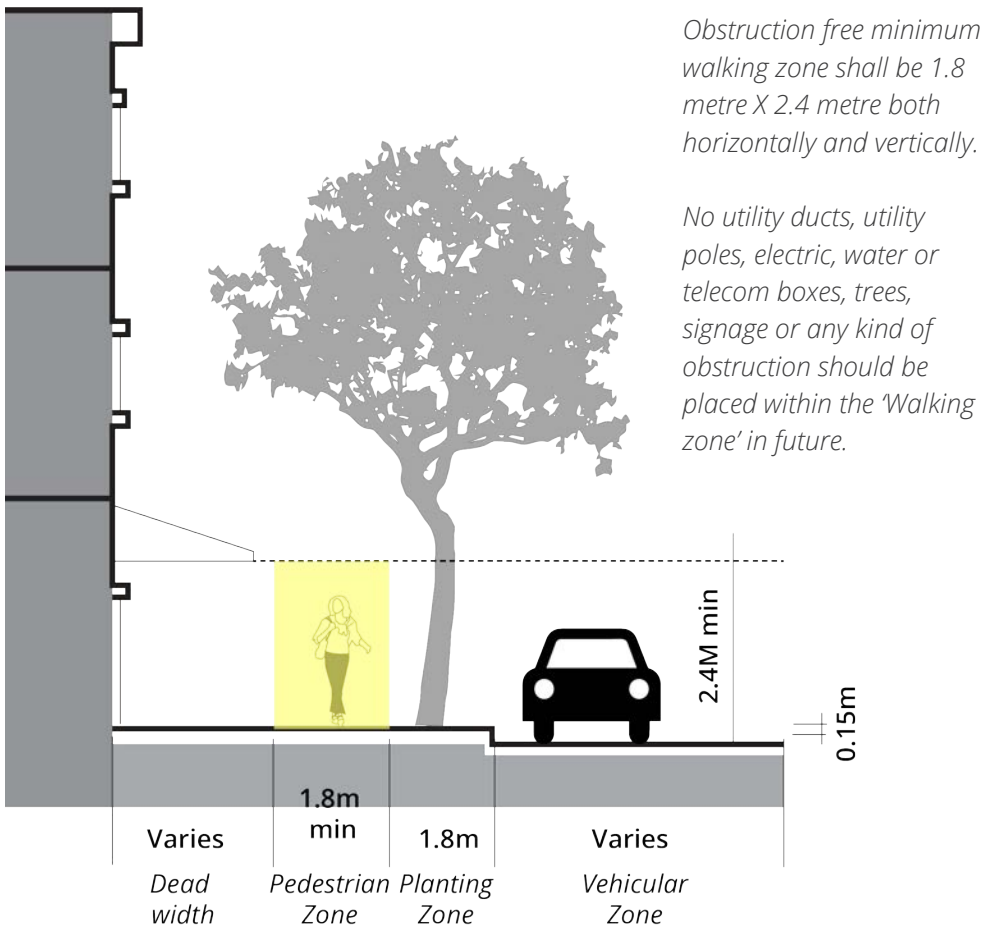
### Sidewalk design standards

#### 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*

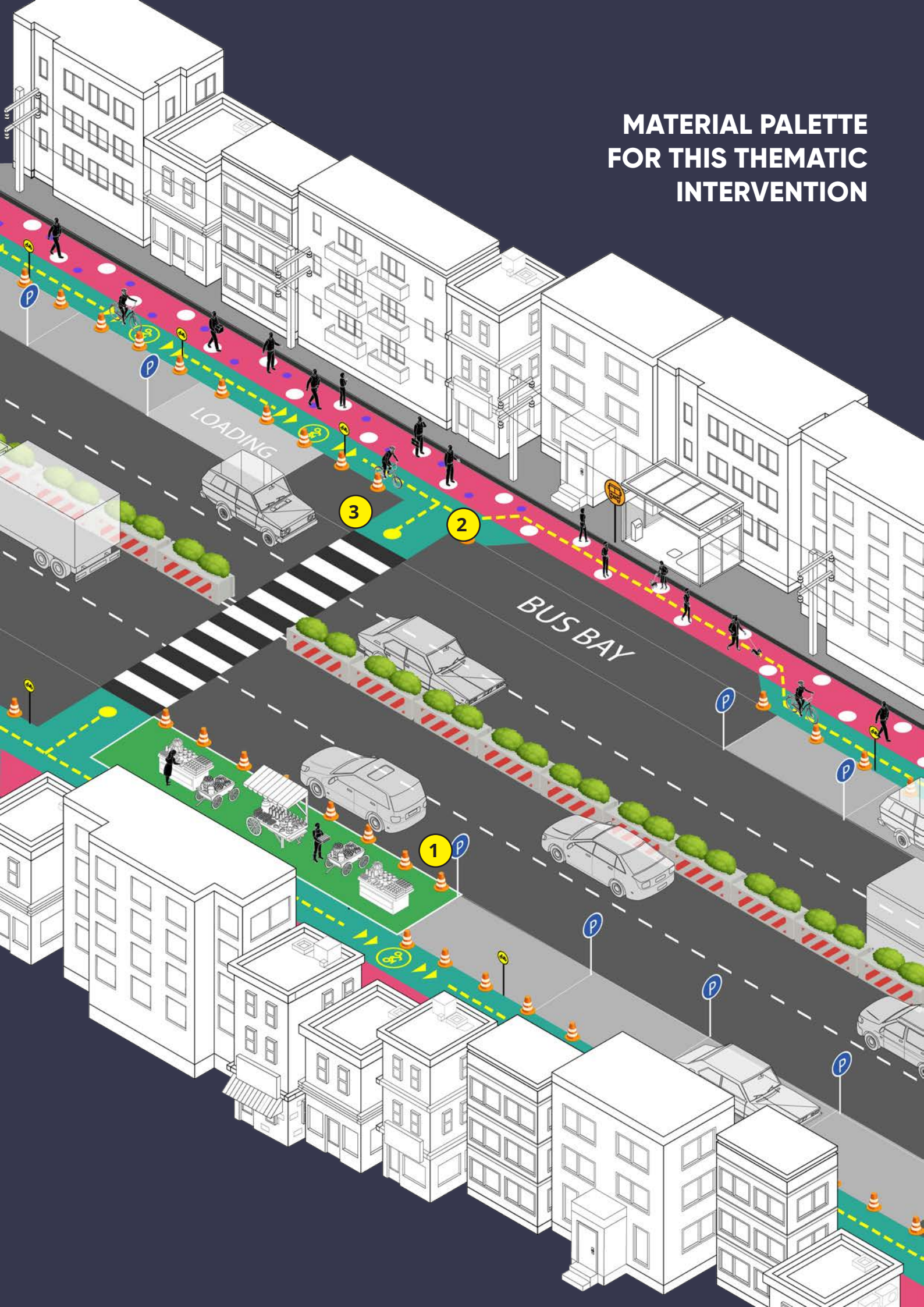
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## **KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION**

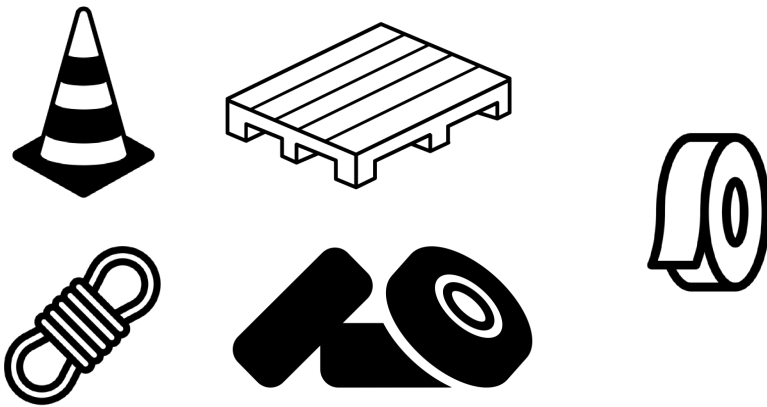
- *How easy is it to walk to this stretch?*
- *Can one reach this stretch via public transport?*
- *Is the access to and from the nearest public transport node convenient to walk to?*
- *Is there adequate space for walking to start with?*
- *Is the carriageway lane configuration streamlined for smooth 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



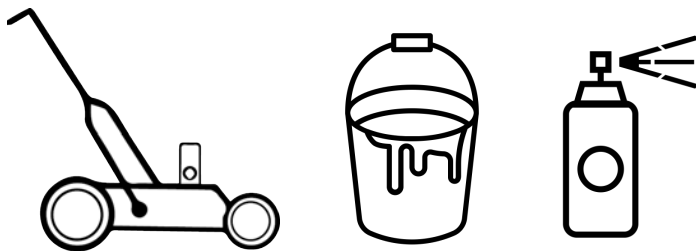
## 1 *RoW Demarcation*



- 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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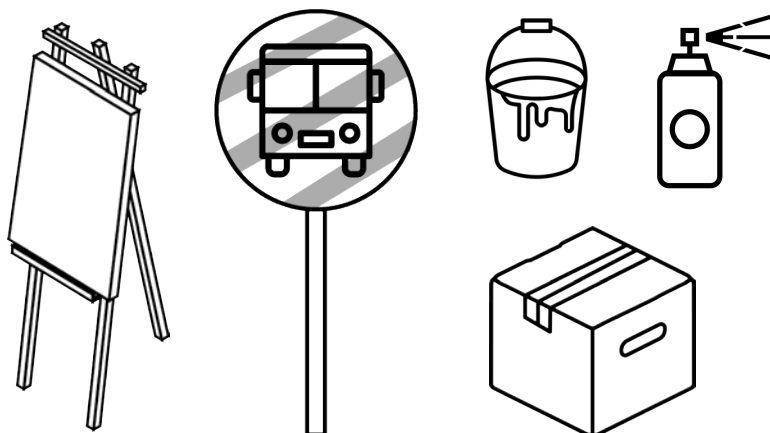
## 2 *Surface Marking*



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

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## 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

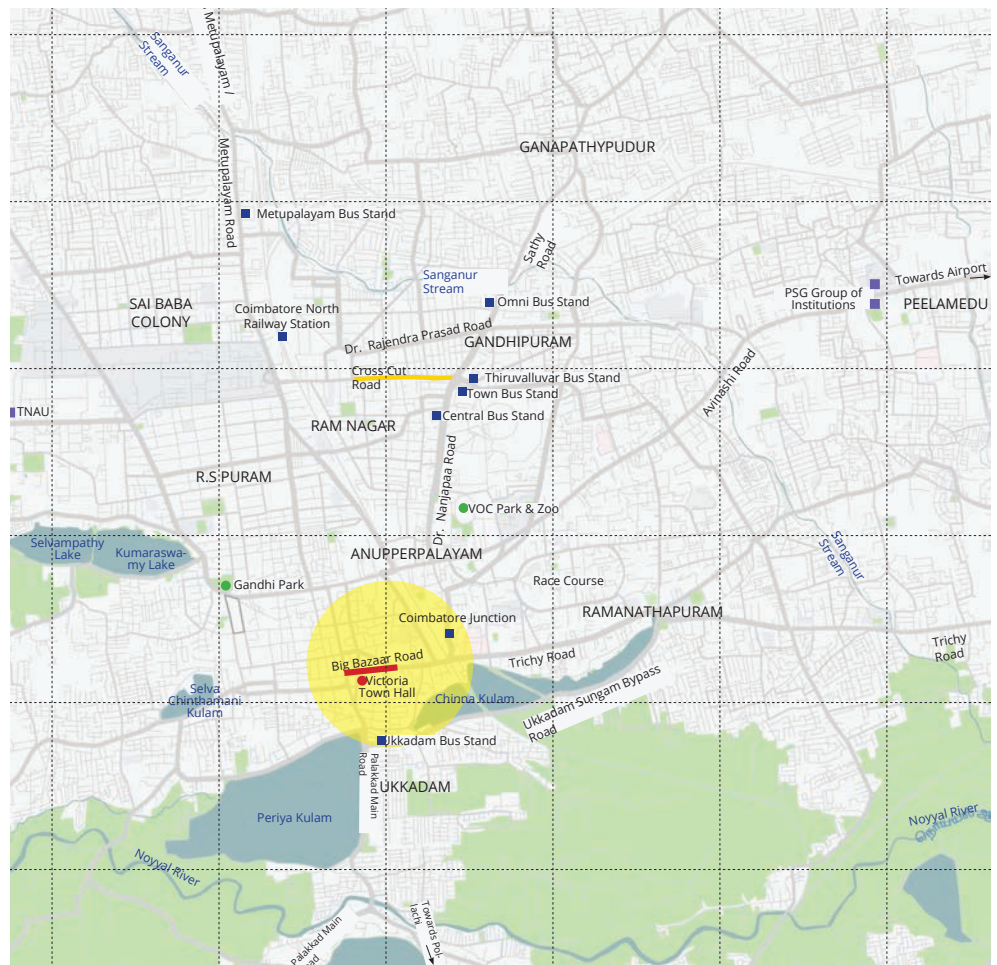


This mapping is important to understand the history and context of the selected stretch at the city scale and its significance with respect to the overall movement patterns in the city.

**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

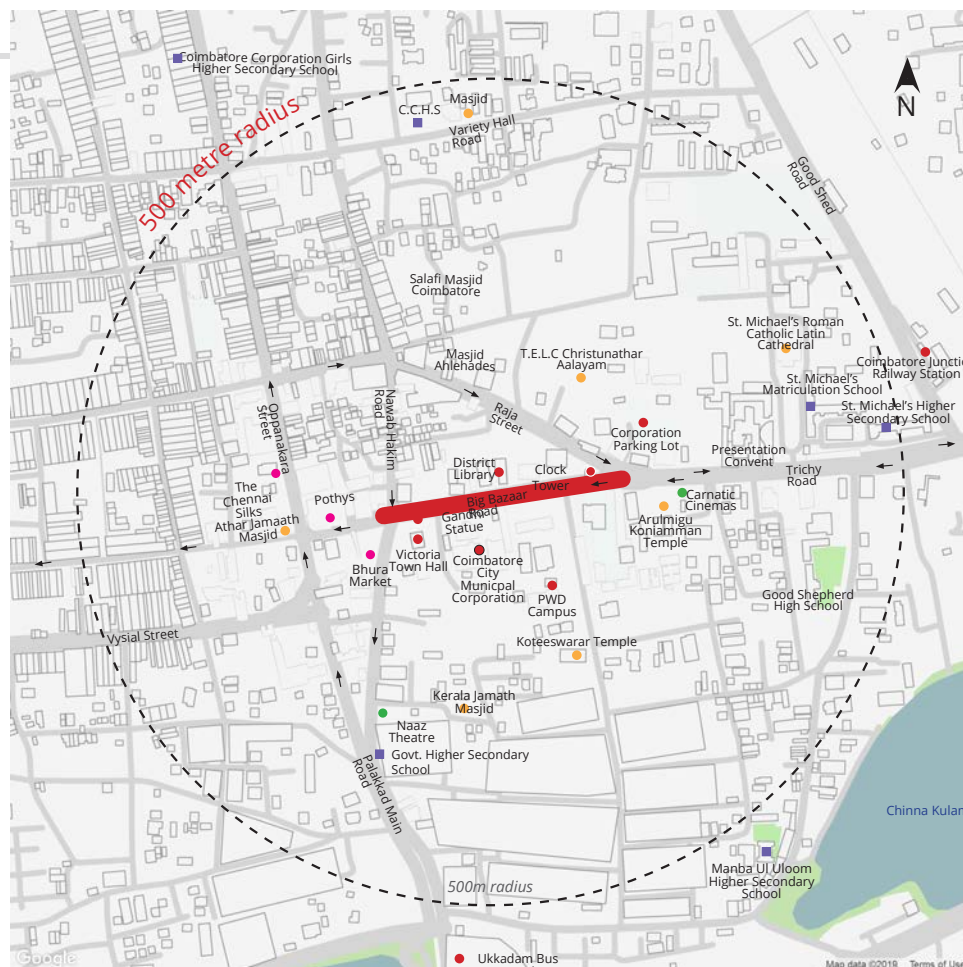


## Block Structure

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.

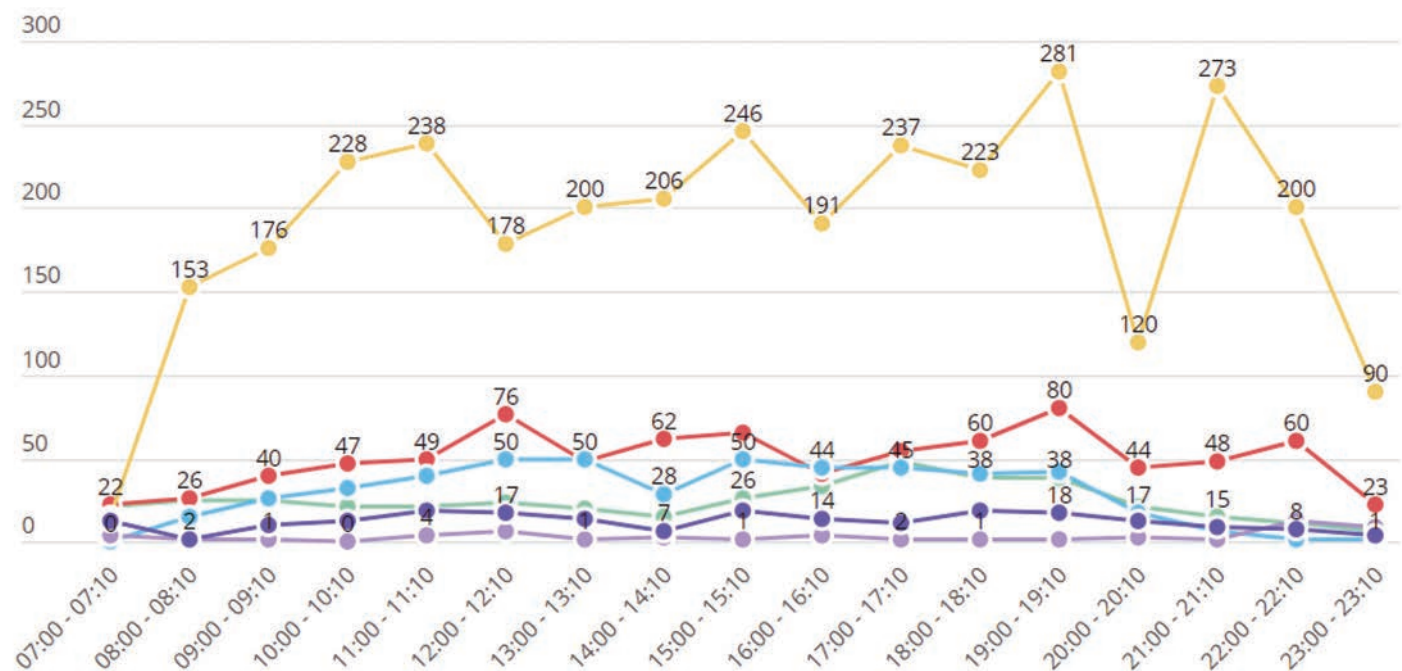


\* Refer to Vehicular count template in Annexures.

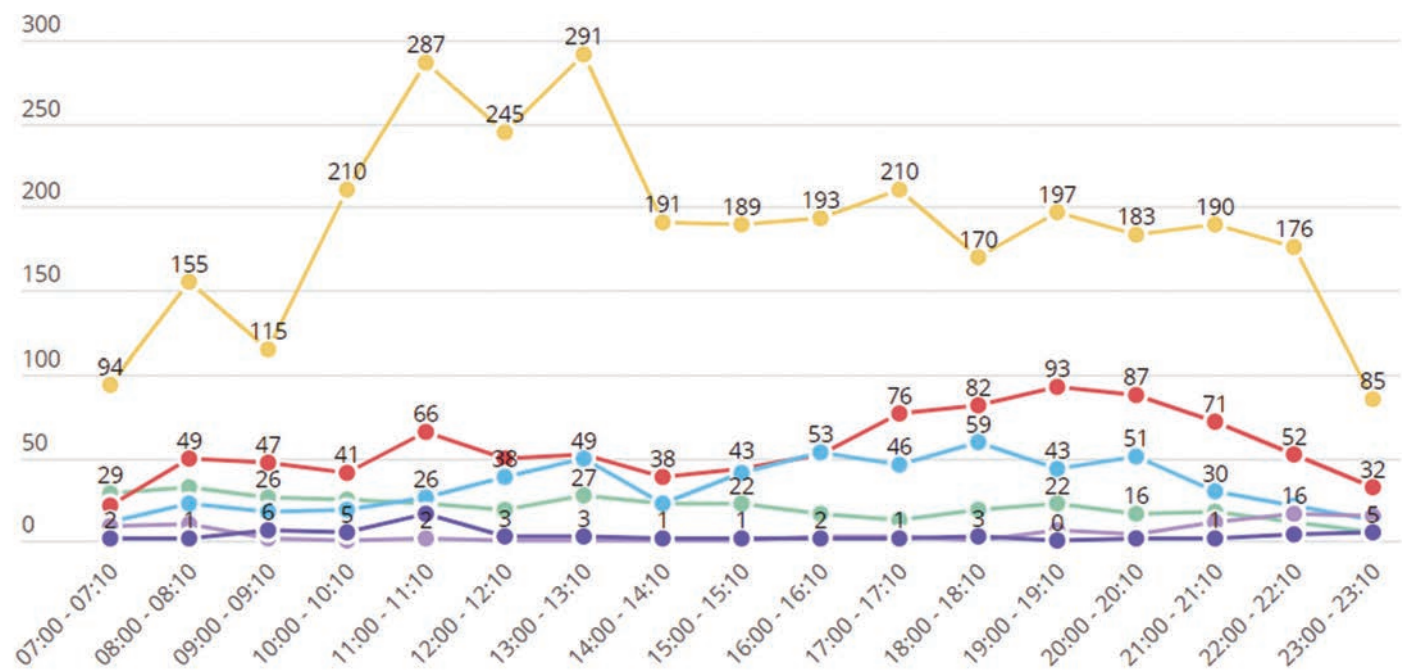
## Sample recording of weekday and weekend vehicular counts



### 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

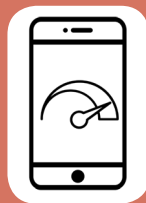




## Traffic speeds

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



## 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.

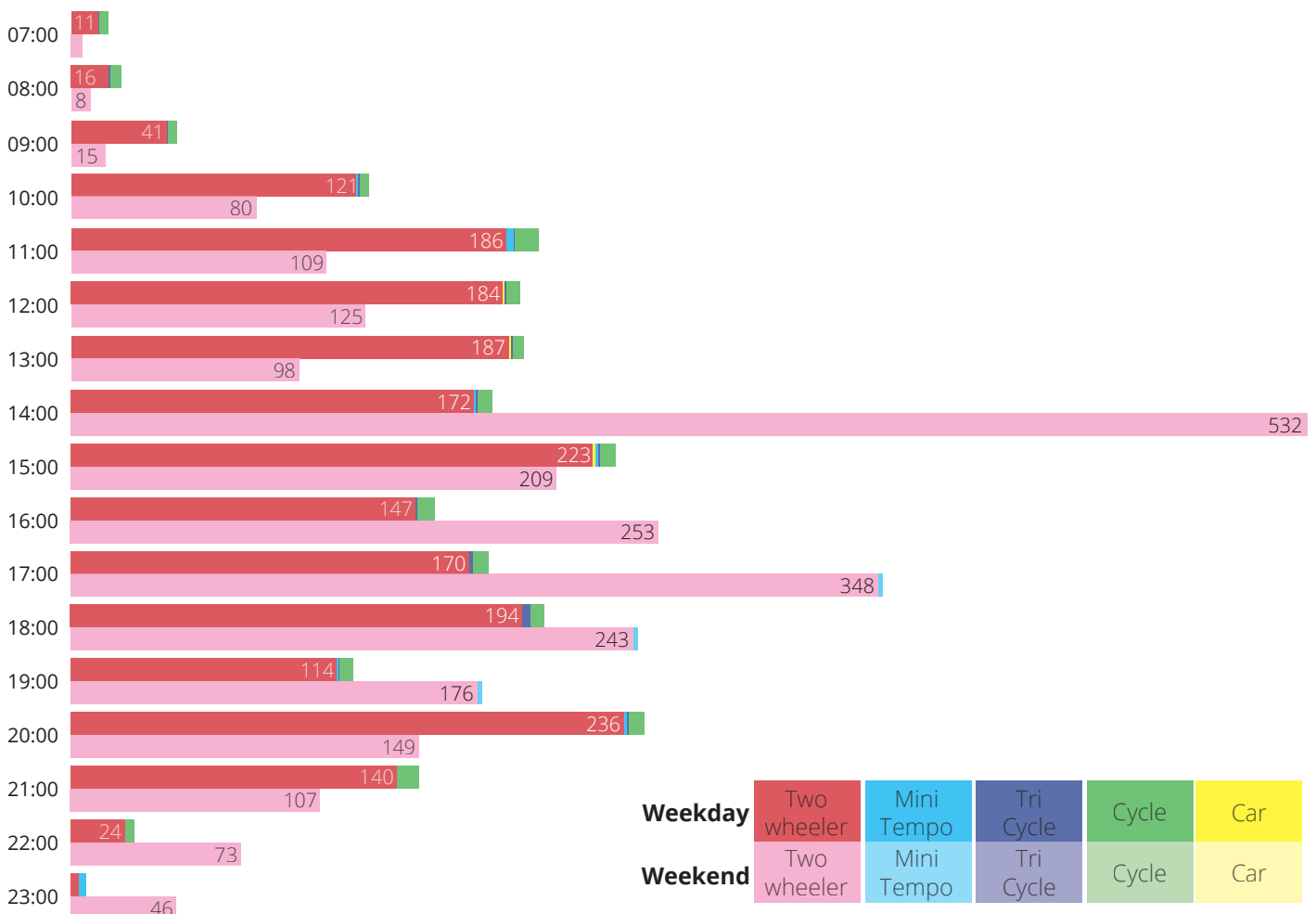


It is also useful to take into account frequency and location of any loading & unloading activities if there are commercial building uses along the stretch.

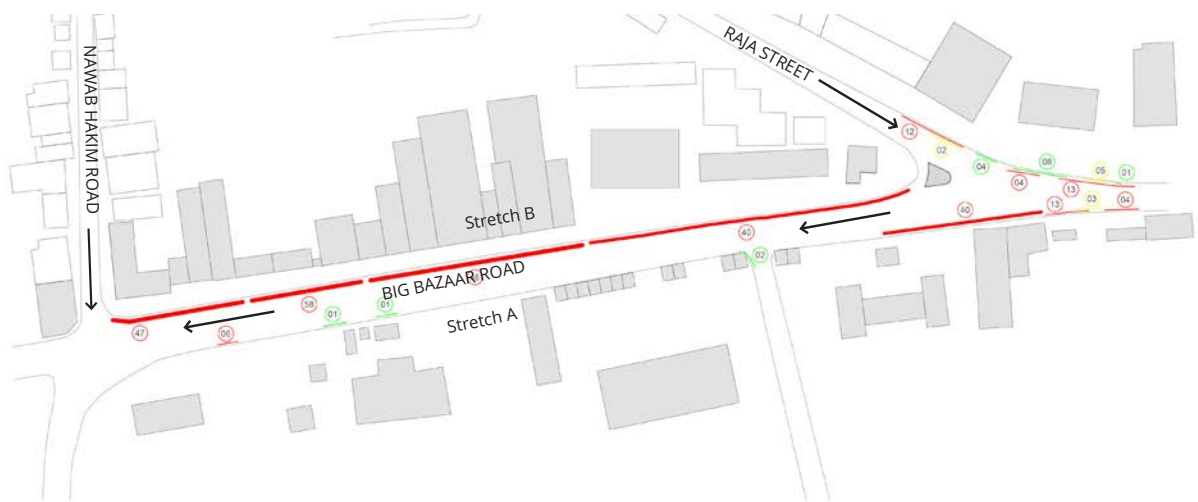
This data will help determine the quantum of parking spaces to be allocated in the street RoW. Additionally, it would also be useful to scan for alternate locations within 500 metres where parking can be relocated temporarily if possible.

\* 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**

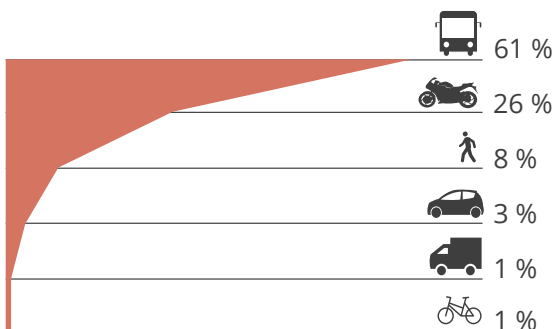


**Perception on accessibility, navigation & road safety**

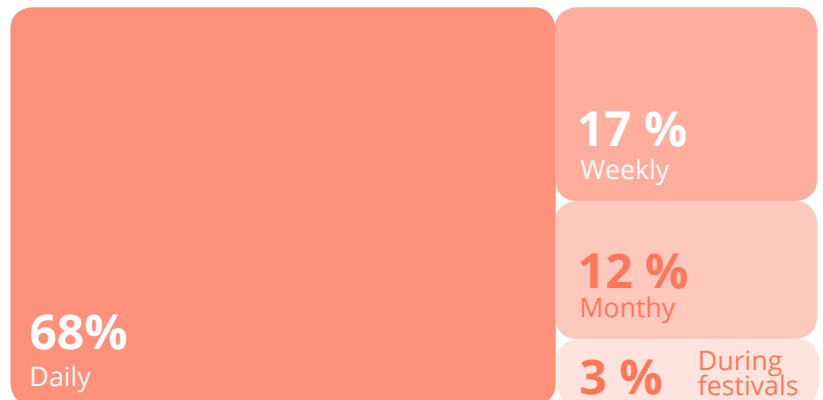
Determining user perception towards driving at the intersection; ease of crossing for pedestrians; means of reaching the stretch, and frequency & purpose of visiting the stretch will help ascertain if design elements to address such issues need to be included.

**Sample response data**

**HOW DID YOU REACH THIS STREET?**

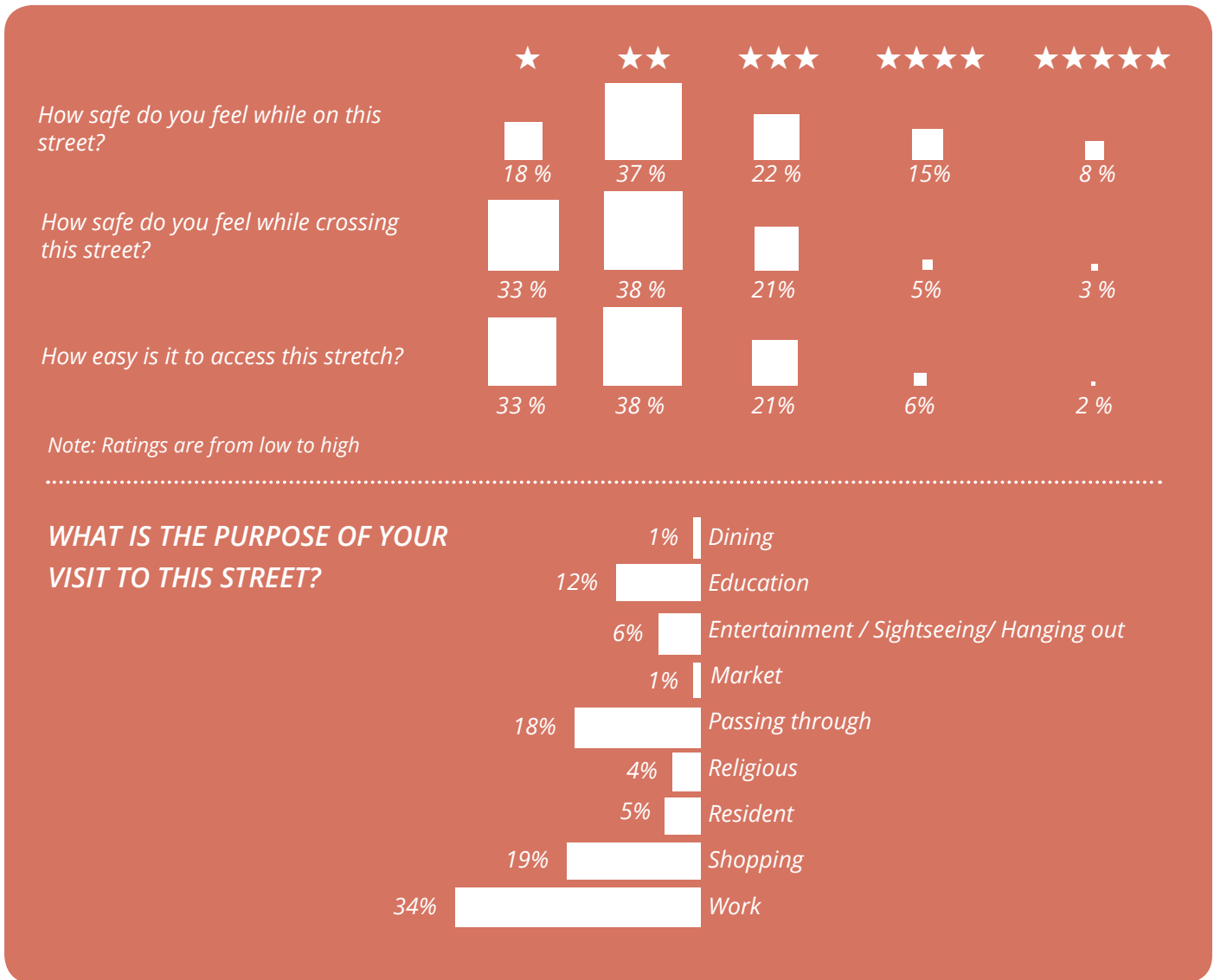


**HOW OFTEN DO YOU VISIT THIS STREET ?**





## Sample response data



## RELEVANT STANDARDS AND THUMB RULES

### Standards for carriage way lane widths

Description	Width (metre)	Notes
Single lane without kerb	3.50	1. For access roads to residential areas, a lower lane width of 3 metres is permissible.
2-lane without kerb	7.00	
2-lane with kerb	7.50	2. Minimum width of a kerbed urban road is 5.5 metres including allowance for a stalled vehicle.
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	

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 <sup>2</sup> . Total height with driver, about 2 metres <sup>3</sup> . With wing mirrors, 2.95 metres <sup>4</sup> . Without wing mirrors <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 Coordinated with entry points of complexes; location of bus / train stops, public facilities etc.
Commercial / Mixed use areas	Spacing Range : Every 80-150 metres
High Intensity Commercial areas	Pedestrianization if possible

Source: IRC 103:2012

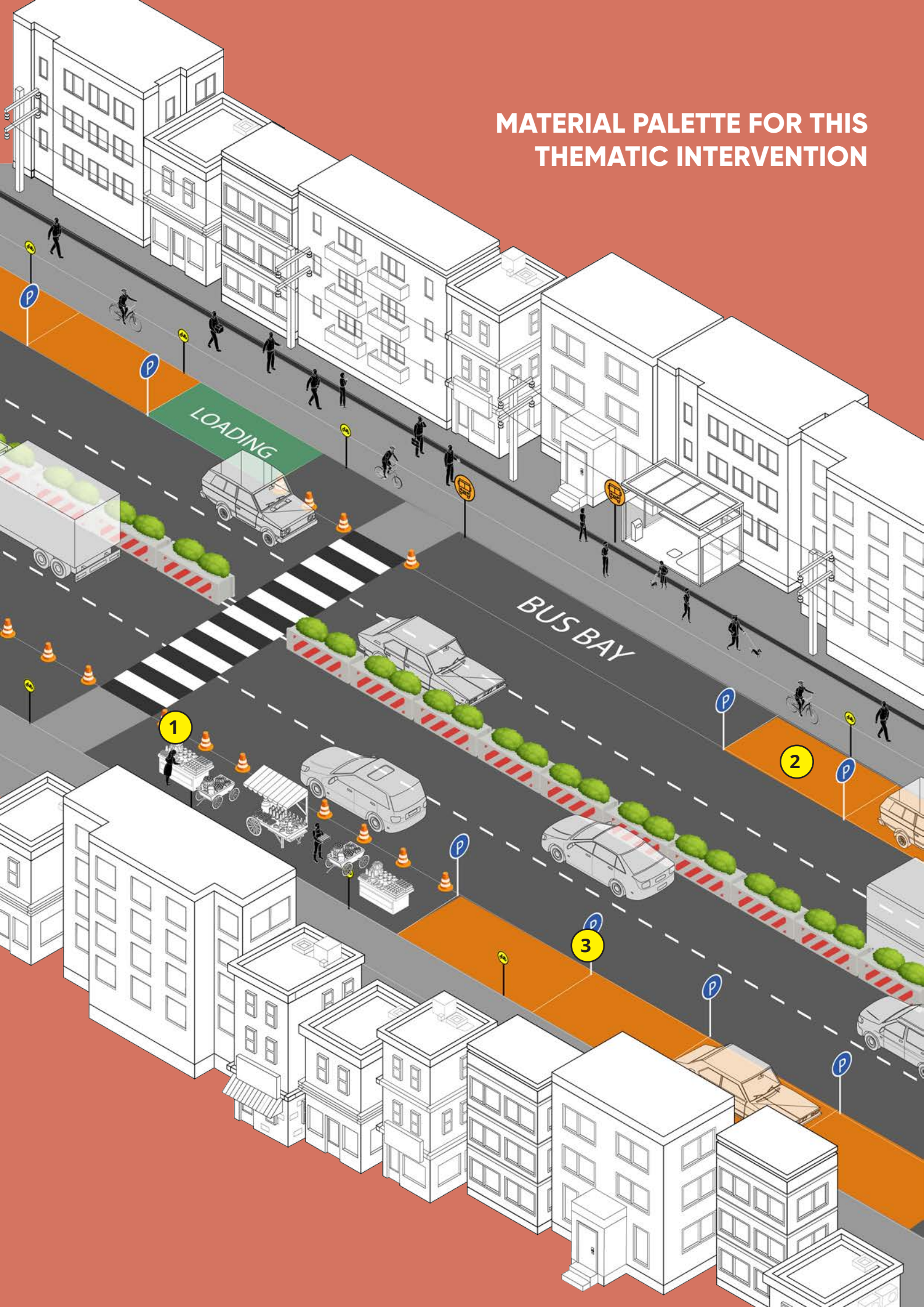
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## **KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION**

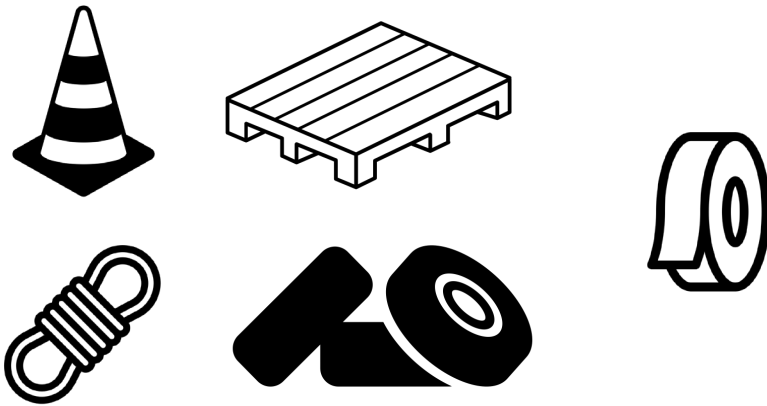
- *What is the number of vehicles using this stretch at different times of the day during weekdays and weekends in each direction?*
- *What is the pattern of traffic flows?*
- *Are there any blind spots while turning at the intersection?*
- *If the carriageway is more than 11 metres, are there refuge 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



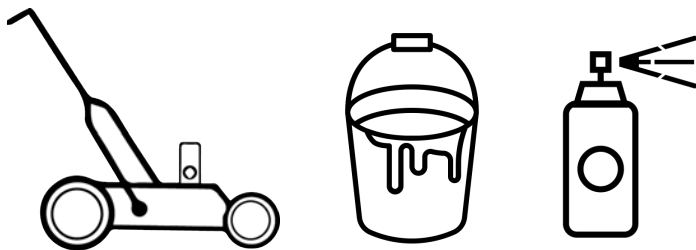
## 1 *RoW Demarcation*



- 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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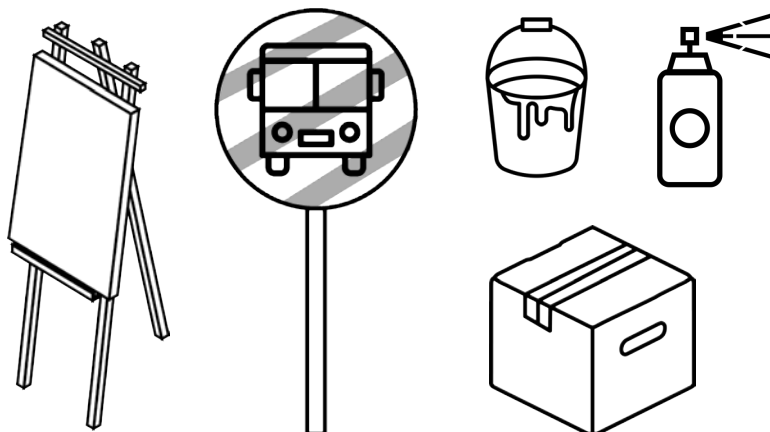
## 2 *Surface Marking*



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

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## 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.

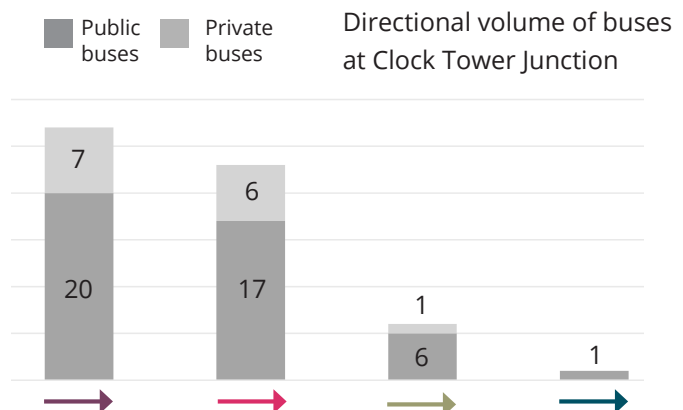
Identify the peak hour and count the number of passengers waiting during the peak hours. Can check with traffic police or any shops/ vendors nearby for peak hour information.

#### **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

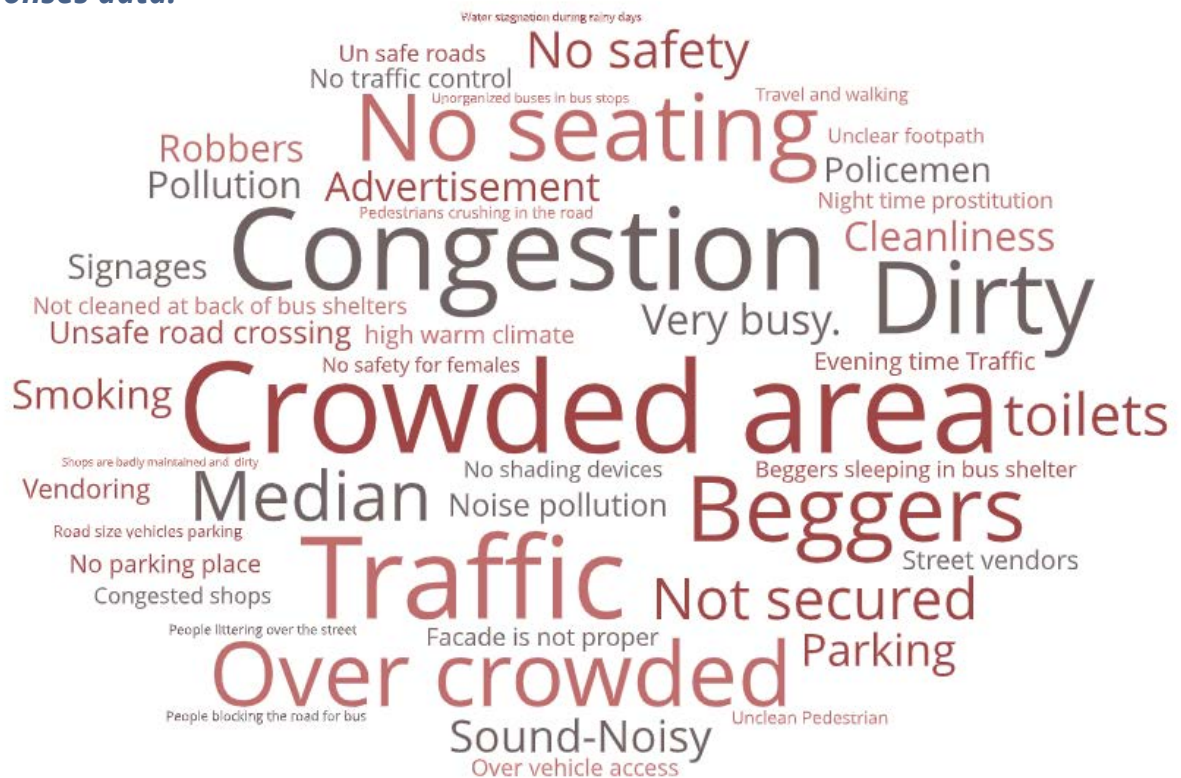
### Issues and Preferences at the bus stop

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

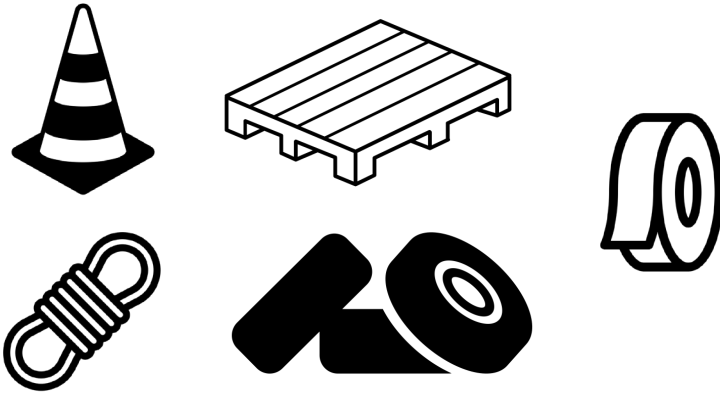
- *Is the existing space enough for people to wait or do they end up waiting on the carriage way?*
- *Is there a need for extra seating or shading at the bus stop?*
- *Is there sufficient lighting at the bus stop?*
- *Is there adequate information signage at the bus stop?*
- *Do we need to allocate a 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

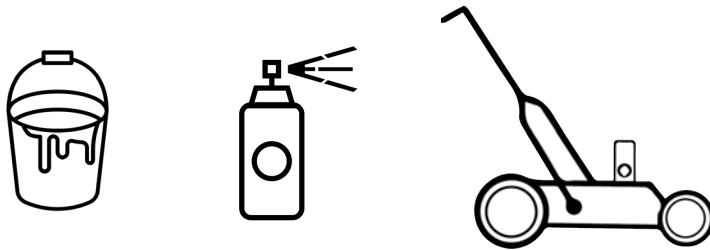


## 1 *RoW Demarcation*



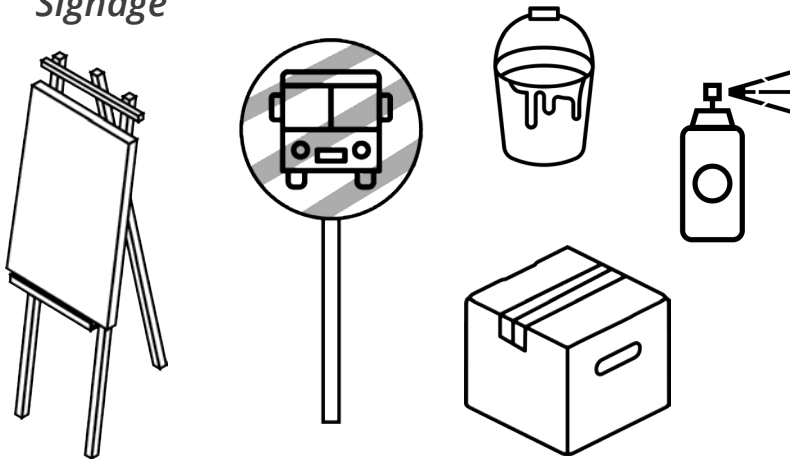
- Traffic cones
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- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

## 2 *Surface Marking*



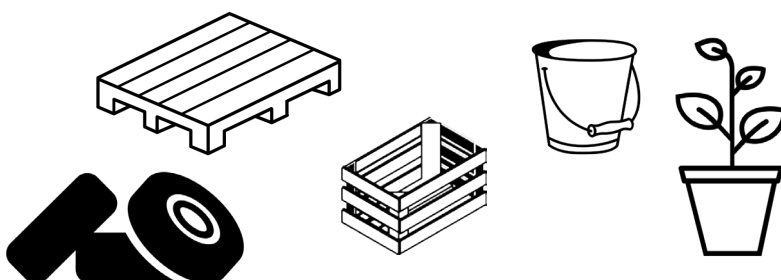
- Acrylic distemper paint
- Floor coat emulsion paint
- Water based epoxy paint
- Thermoplastic paint
- Spray paint
- Aerosol line marking machine

## 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



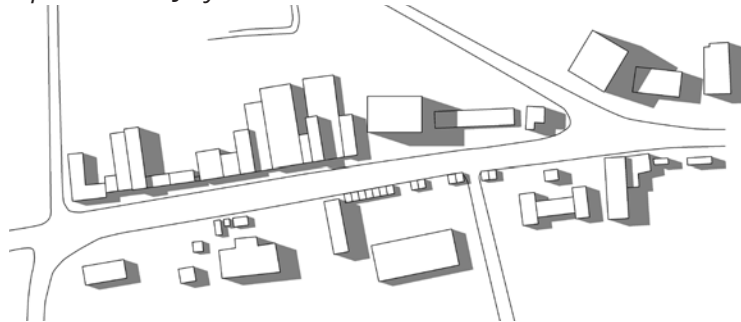
10 am on 19th July 2019



2 pm on 19th July 2019

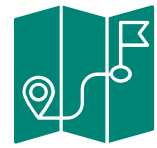


4 pm on 19th July 2019



## 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



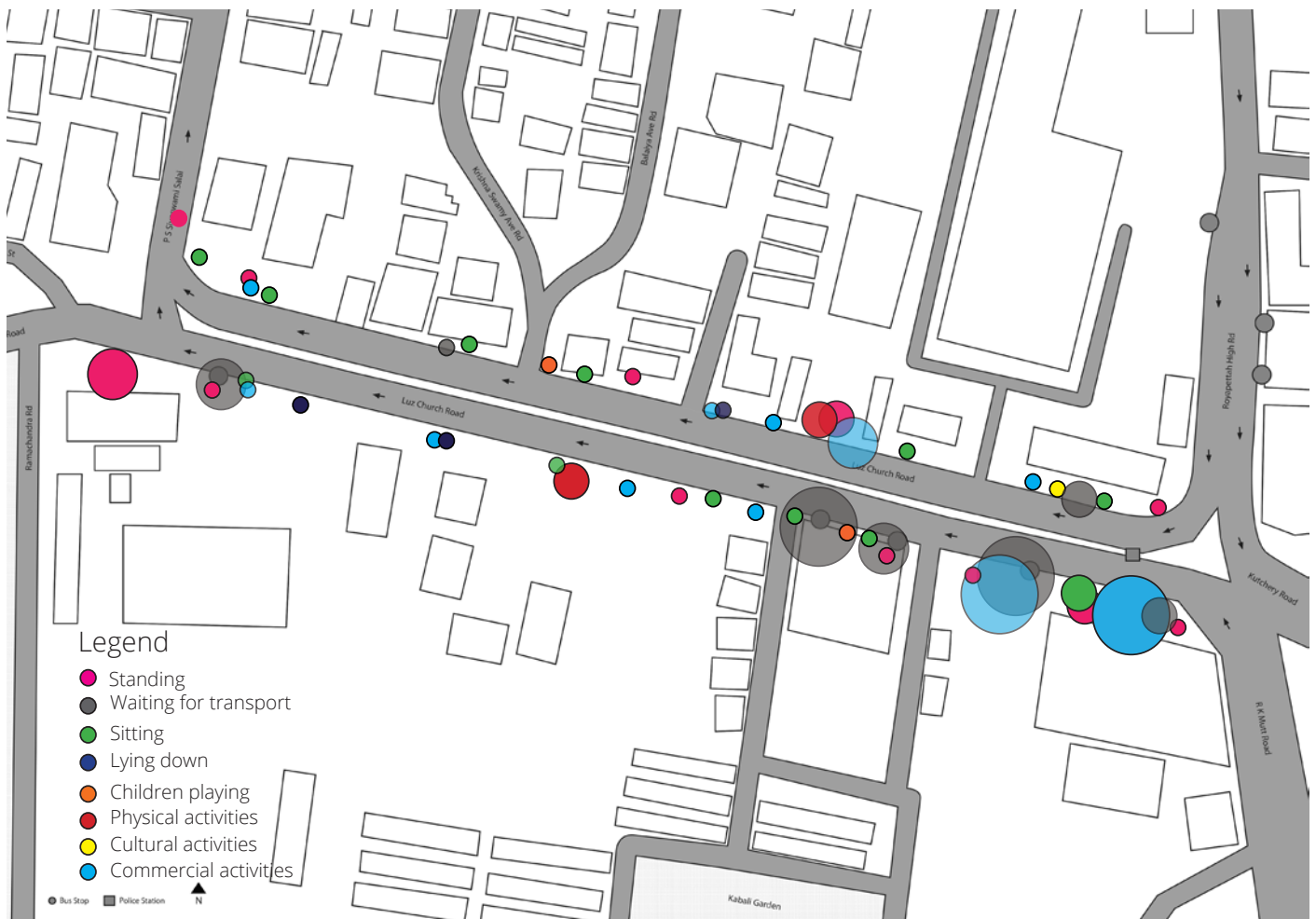


## Activity mapping

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

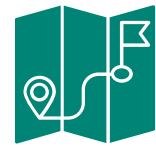
○ 5 - 10 People

○ 10 - 25 People

○ Above 25 People

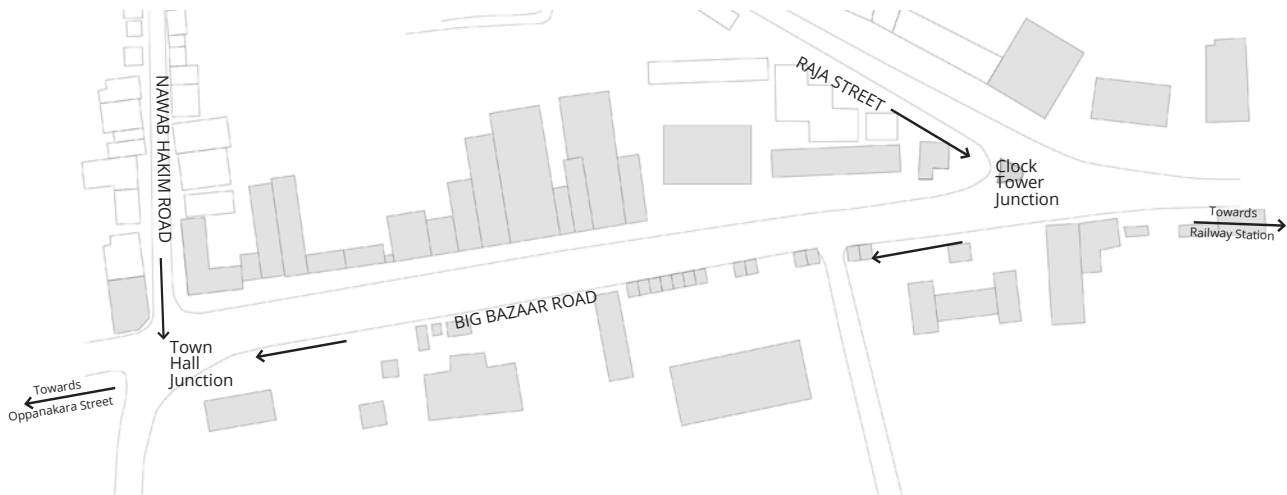
## Age & Gender mapping

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	



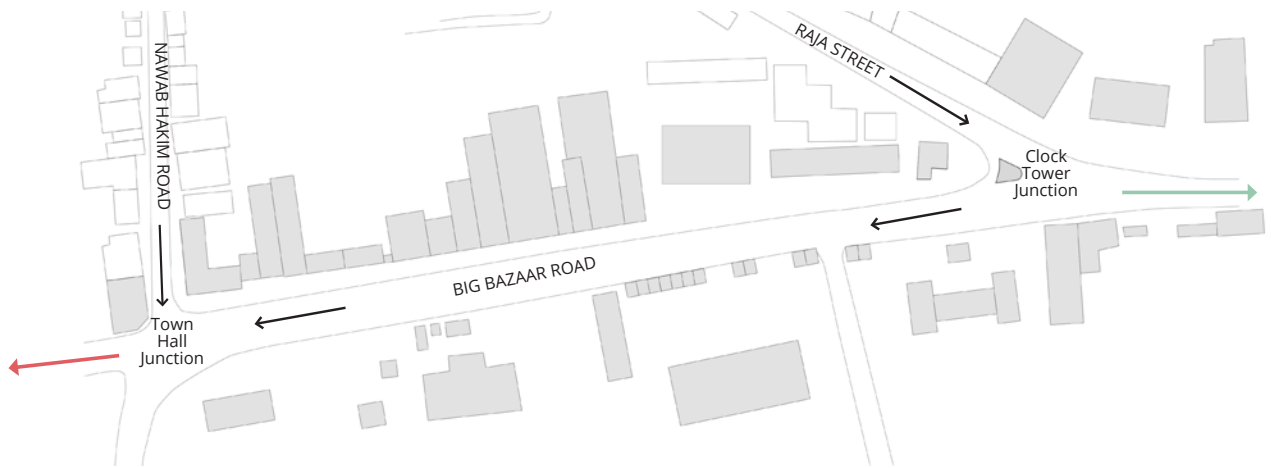


## Pedestrian Movement

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

*\*Refer to pedestrian count template in annexure*

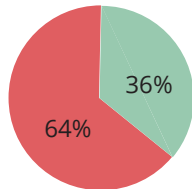
### Sample mapping



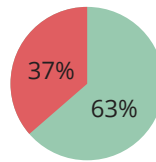
#### At Townhall junction

← Towards Oppanakara Street

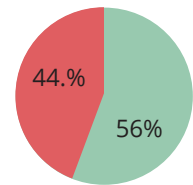
→ Towards Railway Station



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

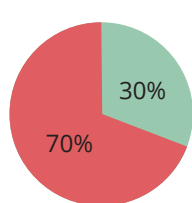


16:00 to 16:10  
**Total Count: 224**

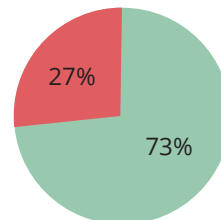


18:00 to 18:10  
**Total Count: 305**

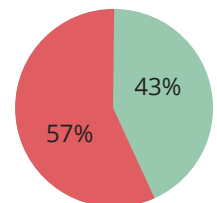
#### At Clock Tower junction



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



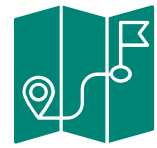
16:50 to 17:00  
**Total Count: 459**



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

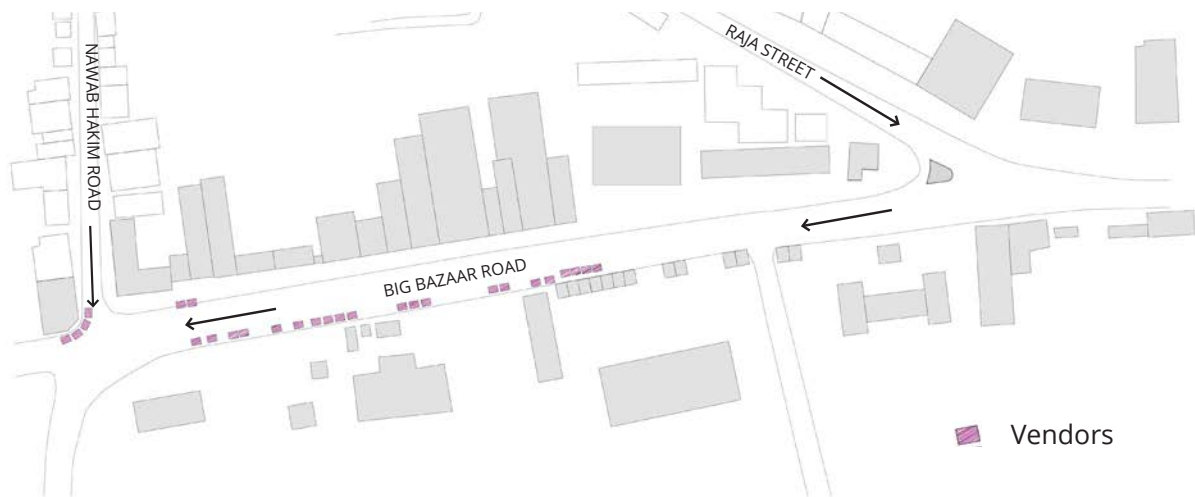
## Vendor mapping

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



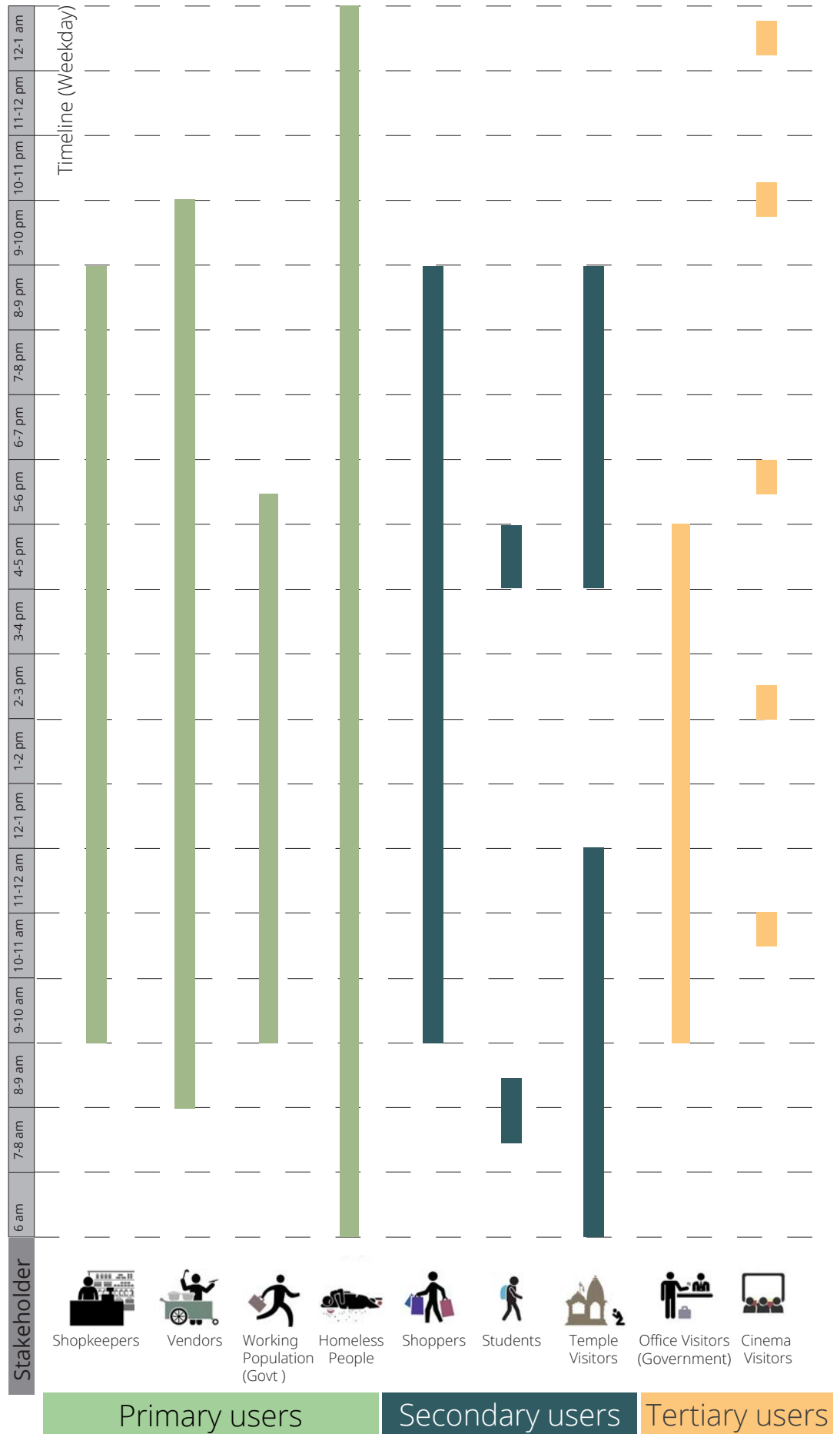
## User group analysis

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



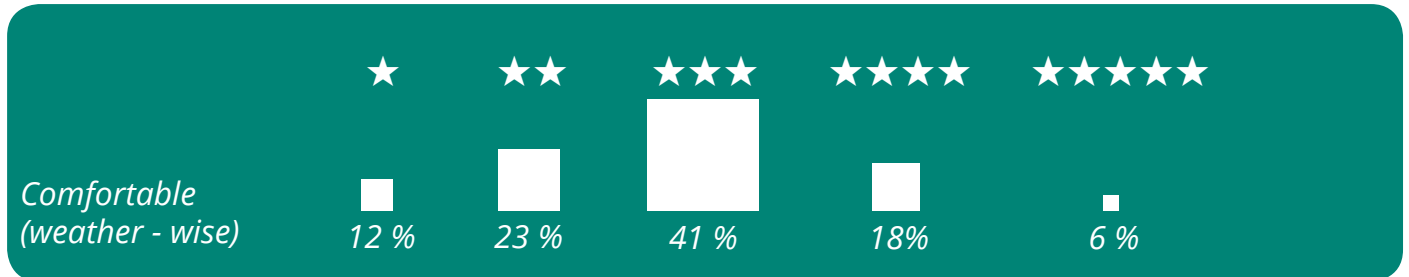
## USER SURVEYS

### 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





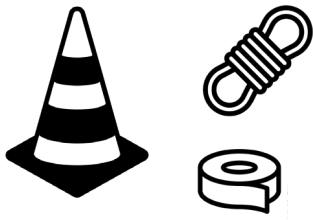
## KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *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

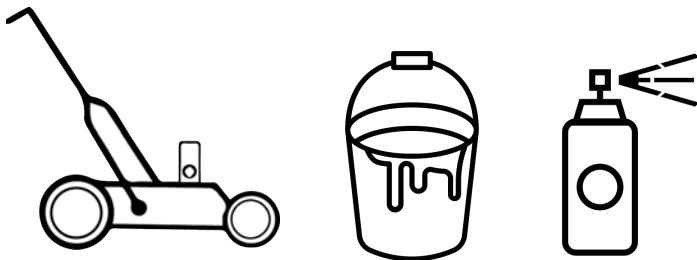


**1** *RoW Demarcation*



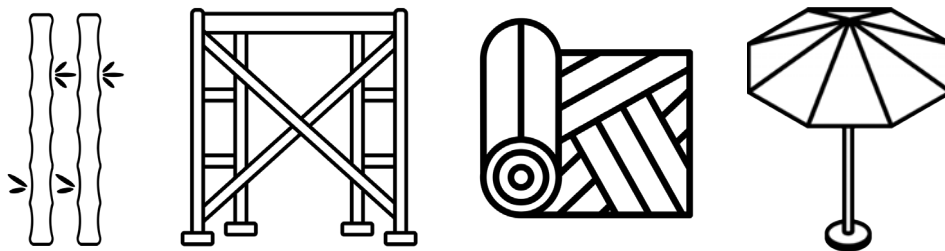
- Traffic cones
- Delineators
- Jersey barricades
- Traffic buttons
- Pavement markers
- Nylon ropes
- Wooden pallets
- Tyres
- Floor marking tape
- Duct tape
- Reflective tape

**2** *Surface Marking*



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

**3** *Shade Structures*



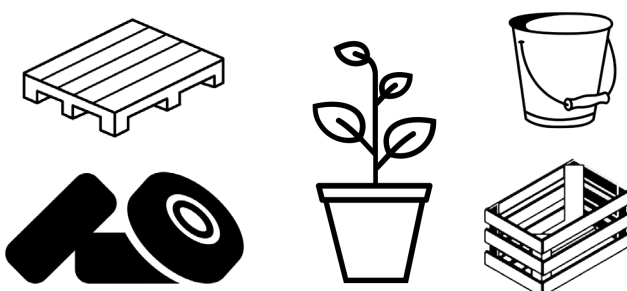
- GI/ Steel pipes
- Bamboo Poles
- Casuarina Poles
- Fabric
- Canvas
- Reed/ Cane mats

**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



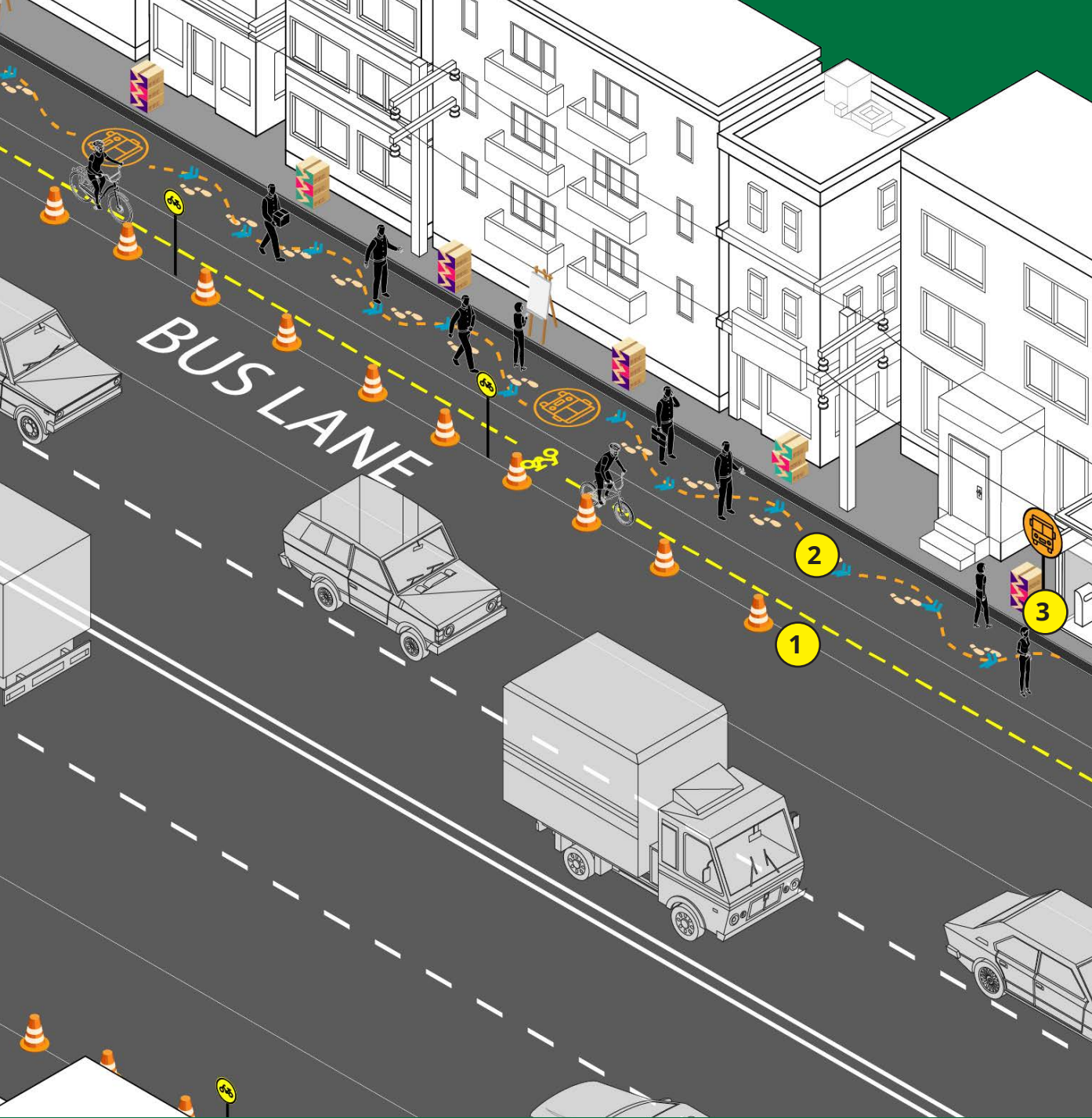
### ***Efficacy of existing signage and need for new signage***

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

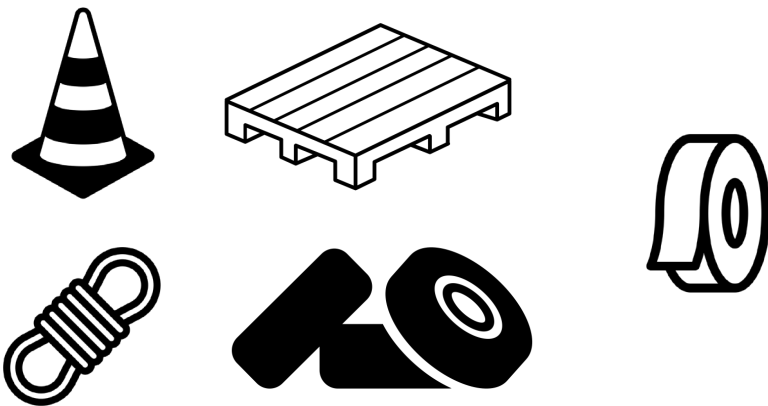
## KEY LEARNINGS FROM ON-GROUND STUDIES REQUIRED TO ASCERTAIN DESIGN DETAILS FOR THIS THEMATIC INTERVENTION

- *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



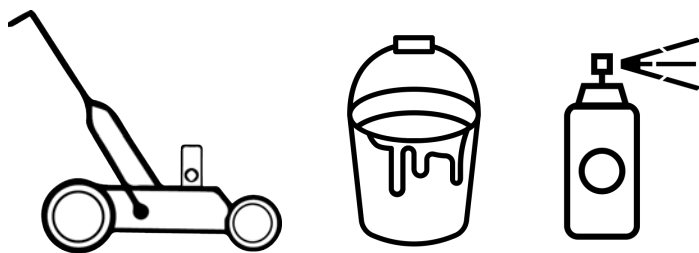
## 1 *RoW Demarcation*



- 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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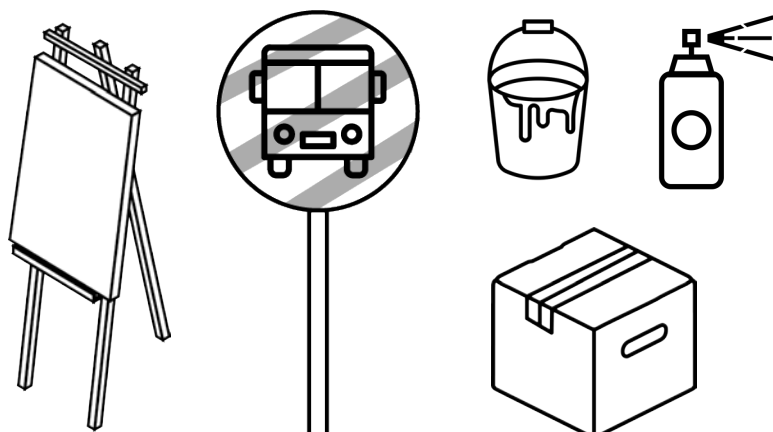
## 2 *Surface Marking*



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

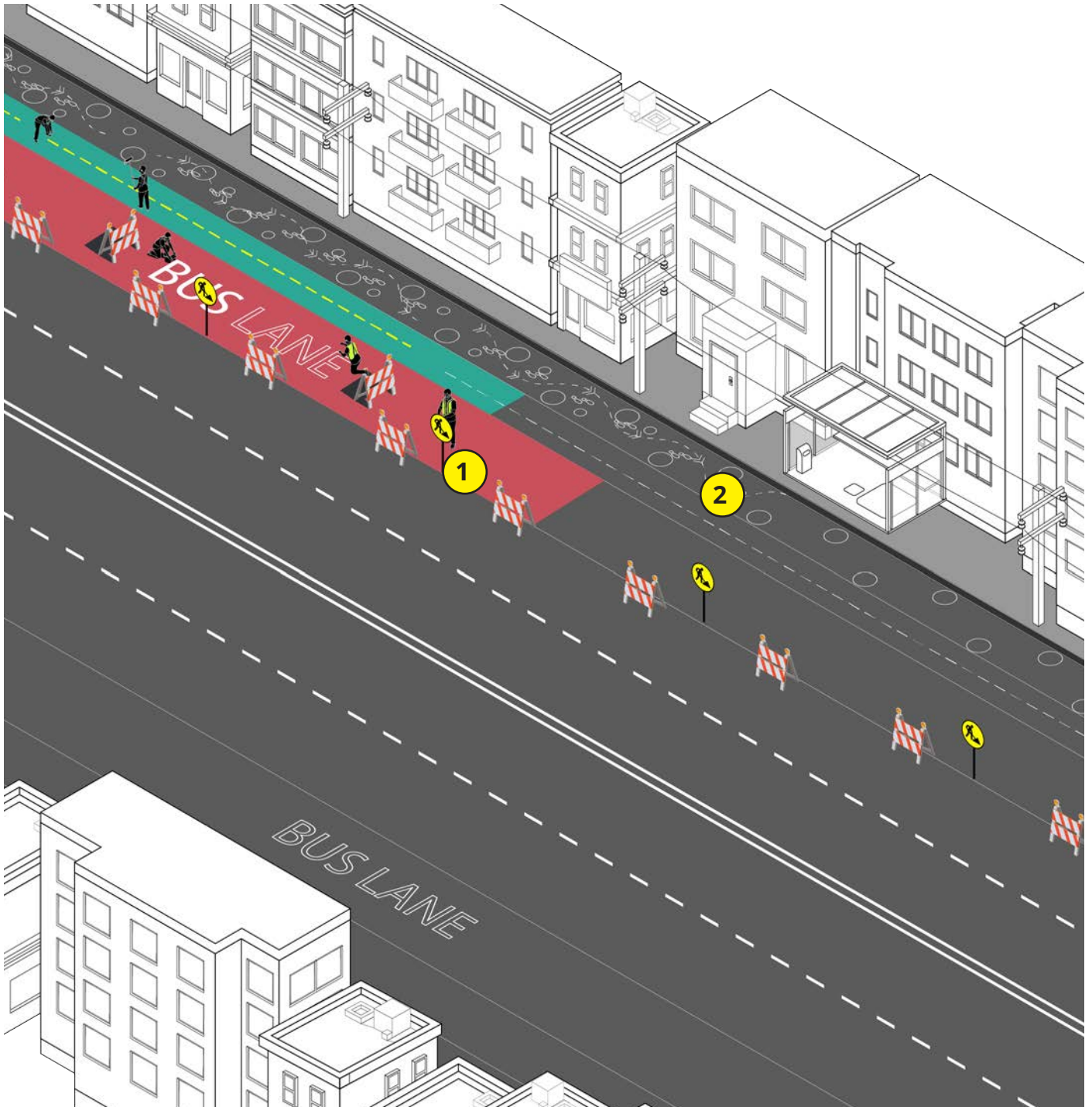
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## 3 *Signage*



- 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



