

Tactical Urbanism

A tool towards implementation

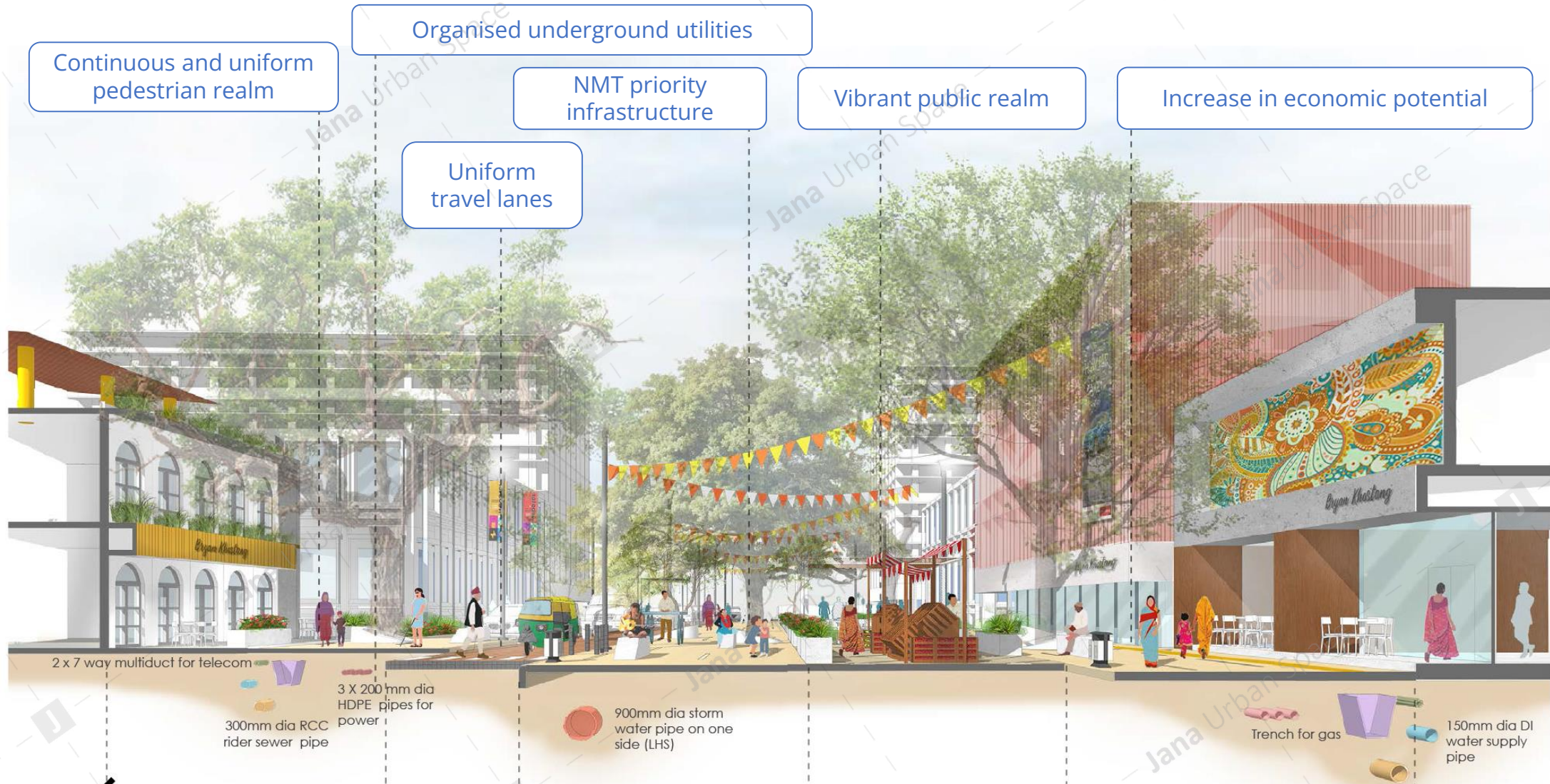


August 2022
Presented by



Why do we need complete streets?

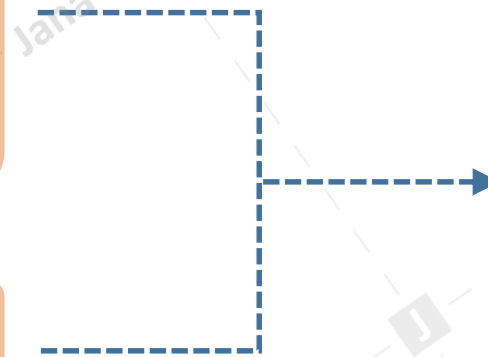
A robust, safe and comfortable **movement corridor for people** irrespective of mode of transport. An organized corridor for **underground utilities** – improved level of service and savings in life cycle cost





How do we build these complete streets?

1. Design Guidelines
2. Execution guidelines
- 3. Champions**
- 4. Proof of Concept**
- 5. Budgetary allocation**
6. Integrated Tender
- 7. Stakeholder and community buy in**
8. GFC drawings
9. Project Monitoring
10. Capacity Building



Where Tactical urbanism can help?

Key stakeholder interactions



The implementation agency

Understanding the existing scenario and implementation challenges from the agency



Law enforcement agency

On ground understanding of the of the vehicular and pedestrian/ NMT movement and the conflicts



Users on ground

Challenges and constraints to free, safe and comfortable movement

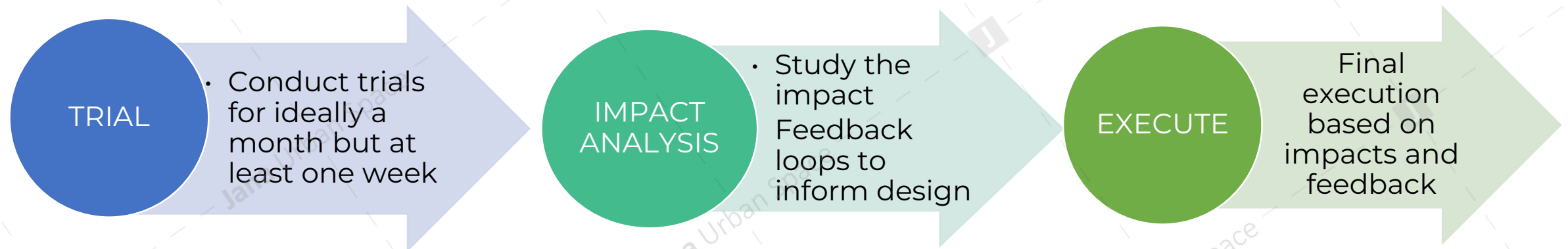
Role of TU from Trials to Execution



Stakeholders in general - both in government, public and traffic police have accepted the status quo of designing streets for cars and when you try to design equitable streets they oppose it, and mostly on behalf of the vehicle

TU - A tool to test the design proposals and get the necessary buy in from the stakeholders for project to be executed.

Three steps to change public opinion and the mind sets of decision makers when just explaining the design doesn't work



Implementation modes of TU projects

MODE 01:

- Quick interventions on ground done by the agency themselves
- Test the designs for a week or two for the stakeholder buy in and user feedback
- Trial to execution timeline is greatly reduced as they do not have much painting/visually impactful modes



MODE 02:

- Conducting longer trials with more visually impactful modes.
- This will involve more budget allocation and time as the planning and execution stage will be longer
- Will have much more reach if a wider stakeholder buy in is required



Methodology



SURVEY



- Identify no. of crashes and fatality at the selected blackspot.
- Conduct traffic surveys, pedestrian volume count, speed survey
- Collect existing road infrastructure, parking and encroachment data

BASE LINE DATA



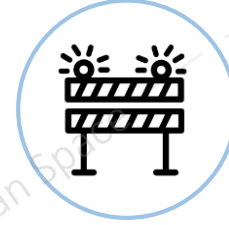
- Documentation of existing infrastructure and pre impact analysis using surrogate measures – Photography and Videography, activity mapping.

DRAWINGS



- Analyze the collected data
- Prepare conceptual drawings
- Refine the conceptual idea through iterative discussions and prepare technical drawings

IMPLEMENTATION



- Prepare Bill of Quantities for TU trial
- Get permissions to conduct trials, photography and videography
- Implement the trial for 1 month

END LINE DATA



- Documentation of intervention and post impact analysis using surrogate measures – Photography and Videography

EXECUTION



- Study and collect data during trial impact - Analyse the data and compare pre and post trial scenario
- Use these learnings to inform the final implementation on ground

VISUAL SURVEY

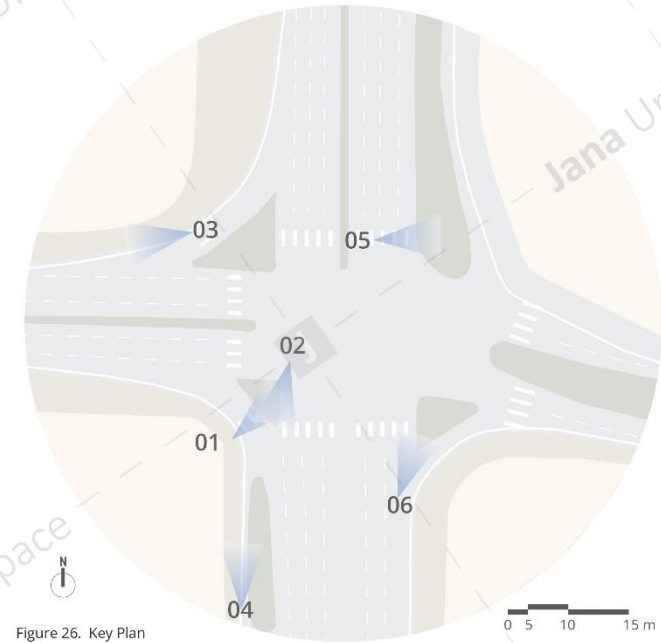


Figure 27. 01 photograph taken early in the morning, showing poorly designed pedestrian crossings, vehicular stop lines and signboards absent.



Figure 30. 04 SPA SERVICE ROAD - runs parallel to Mahatma Gandhi Marg and opens out onto the intersection causing conflict issues. The footpath is pushed further away from the road, has no lighting and is unsafe. Effective width of the footpath is compromised by existing trees.

Figure 29. 02 poor quality of pedestrian refuge, lack of accessibility for the physically and visually challenged, access road opening up onto the intersection, and free left promoting speeding and rash driving.



Figure 31. 05 curb cut designed for universal access but footpath is encroached with traffic barricades and potted plants.



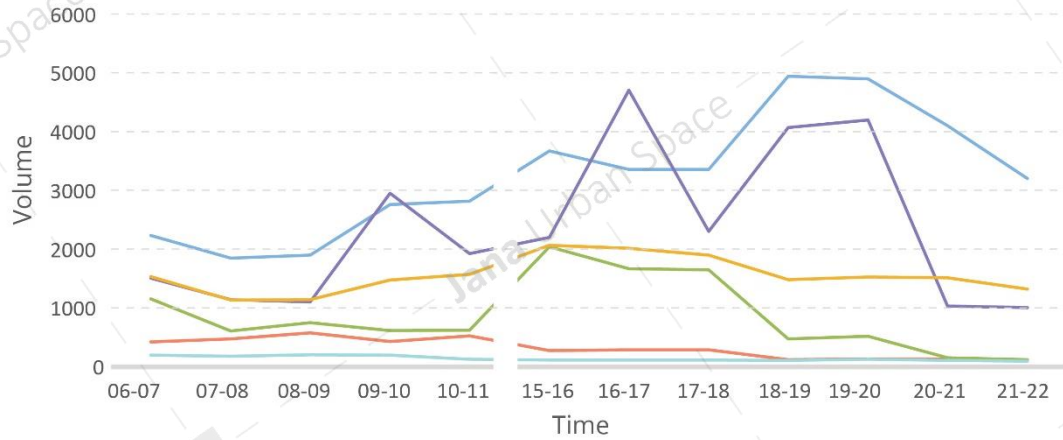
Figure 28. 03 poor quality footpaths further reduced by encroachments. The intersection is lined with passive edges - blank compound walls which makes it unsafe at night, especially for women.



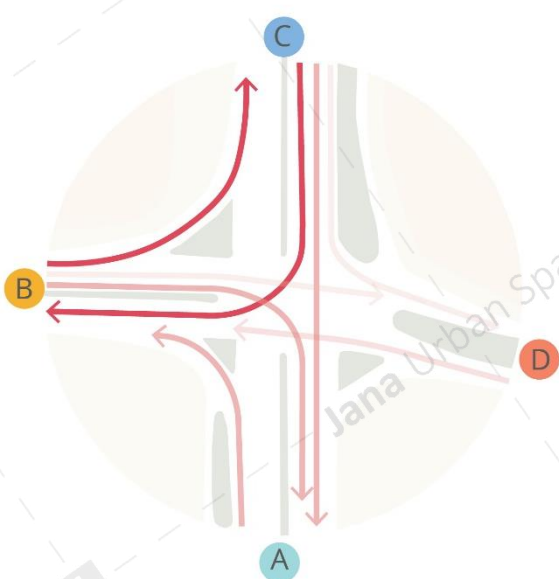
Figure 32. 06 poor quality refuge islands, paint markings unclear reducing road safety greatly. The intersection has good green cover providing a shaded experience to pedestrians and cyclists.



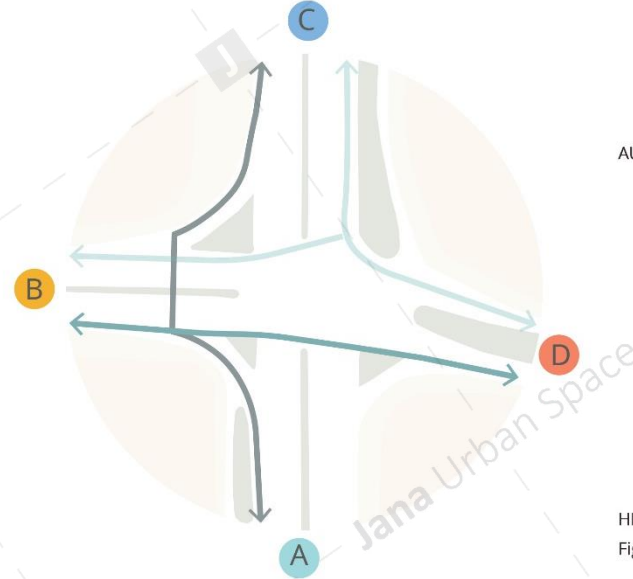
TRAFFIC DATA ANALYSIS



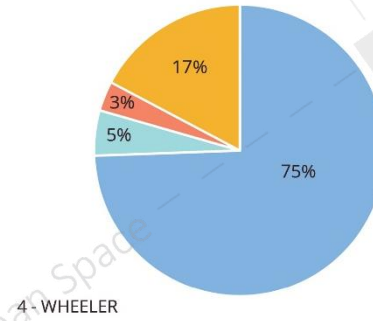
Traffic volume analysis



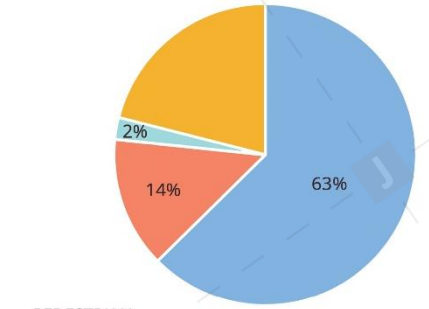
Traffic intensity analysis



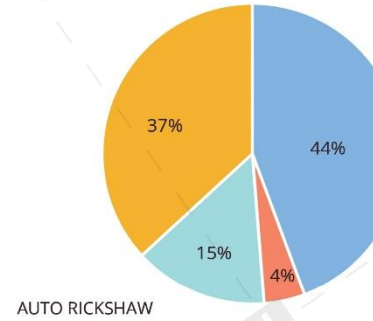
Non motorised traffic intensity analysis



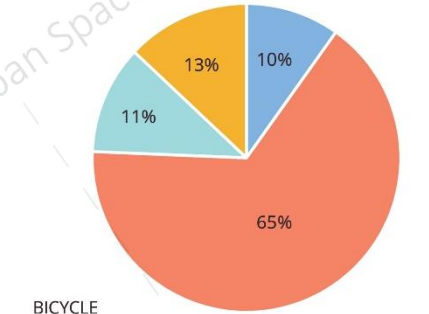
4-WHEELER



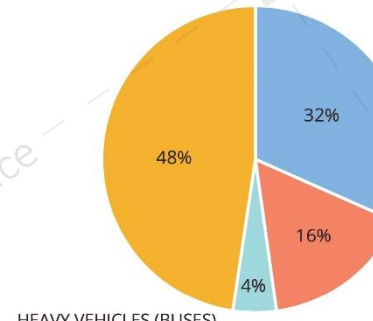
PEDESTRIAN



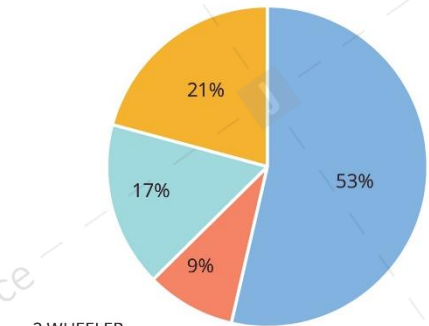
AUTO RICKSHAW



BICYCLE



HEAVY VEHICLES (BUSES)



2 WHEELER

Figure 19. Modewise traffic intensity distribution

Modewise intensity analysis



Conflict assessment

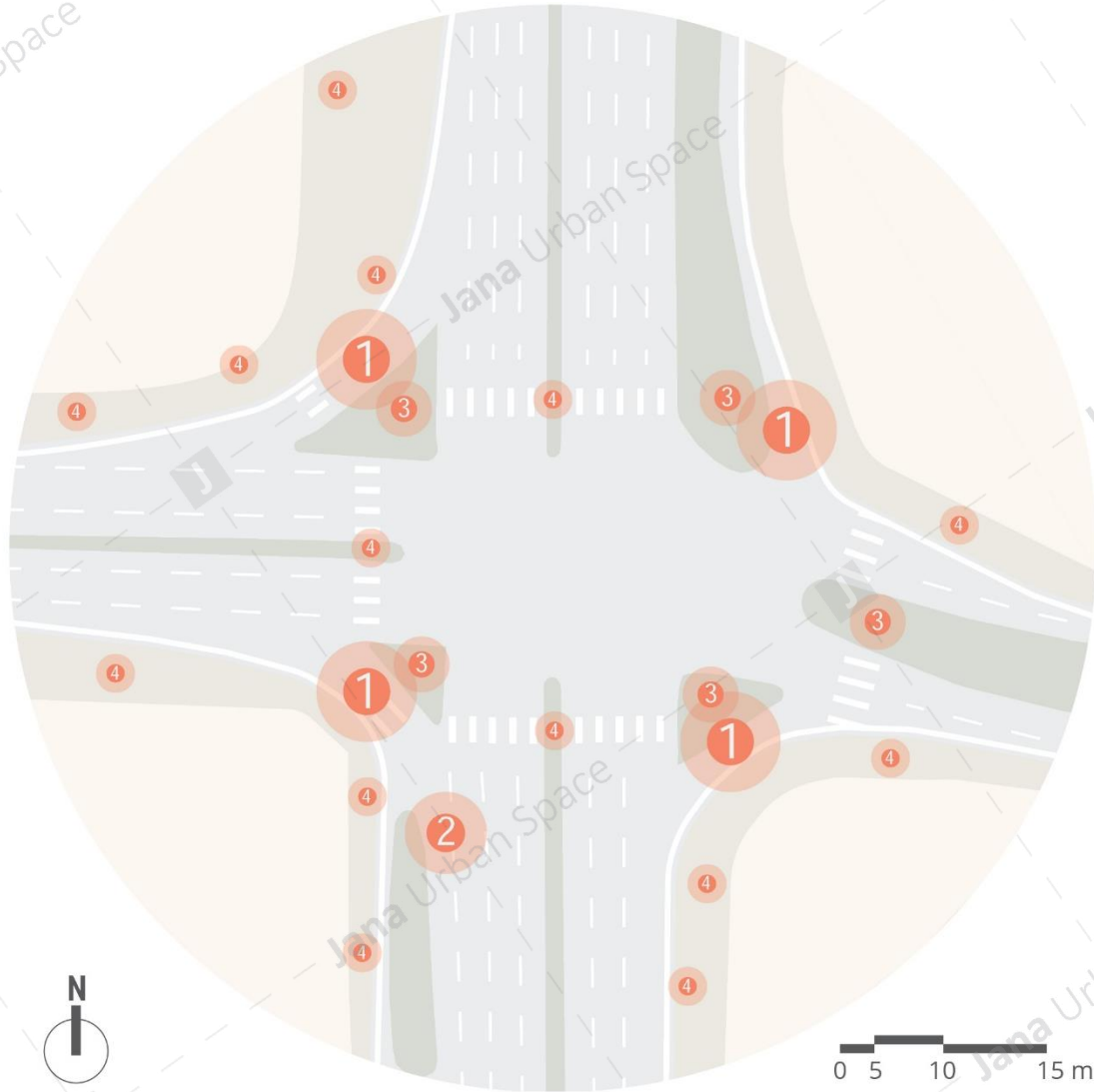


Figure 21. Access / Service lanes - open out onto the intersection. Crossings are discontinued at this point, endangering pedestrians.



Figure 22. Inaccessible median makes the road impossible to cross at Satyagraha Marg.



Figure 23. Refuge area is not protected. Road markings are not as per standards. Stop lines not seen, lack of signage.



Figure 24. Freeleftpromotesspeeding.Unscientific crossings - which dont meet at the refuge island.

LEGEND

- 1 Pedestrian Crossings
- 2 Footpath
- 3 Signages
- 4 Vehicular Crossings



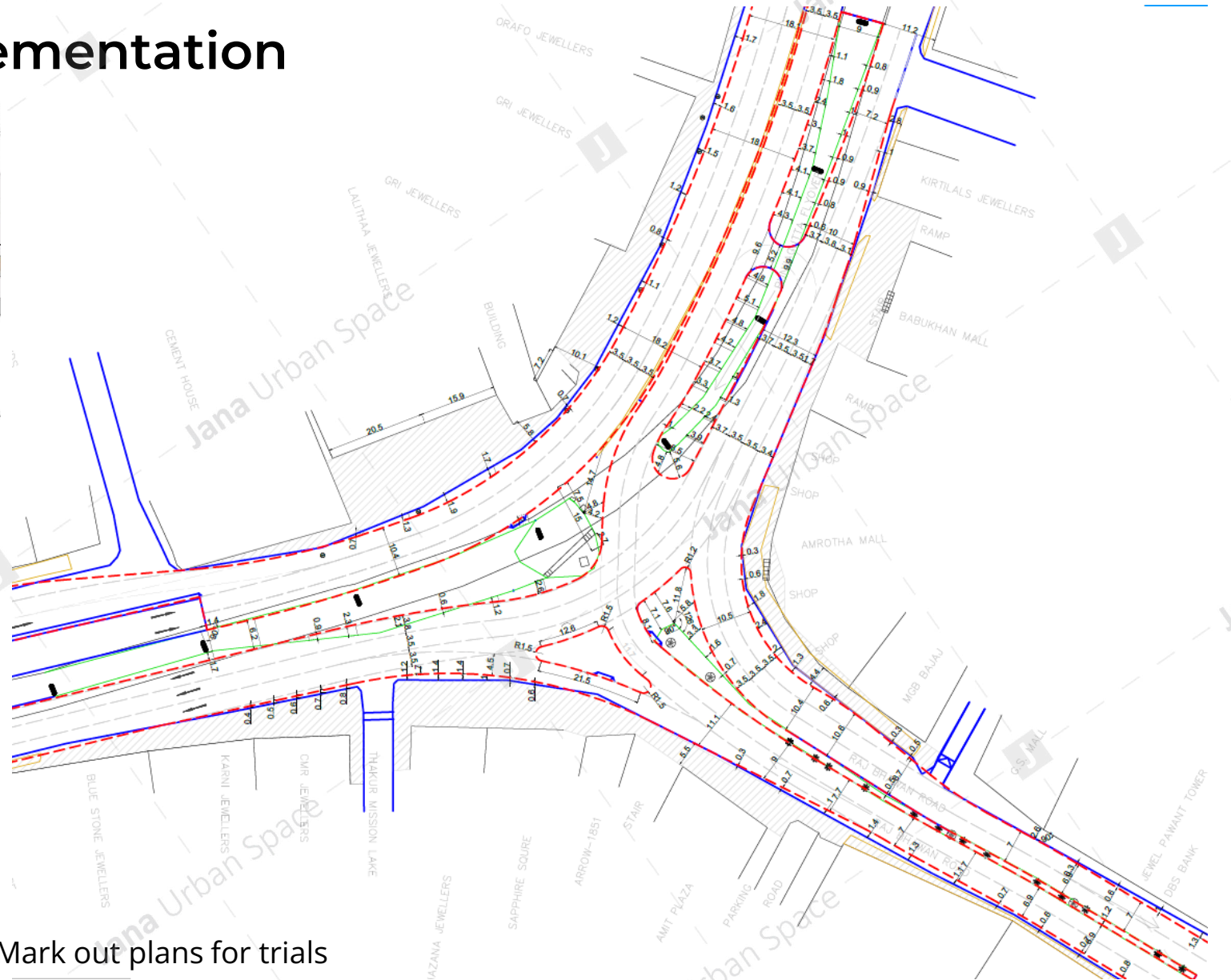
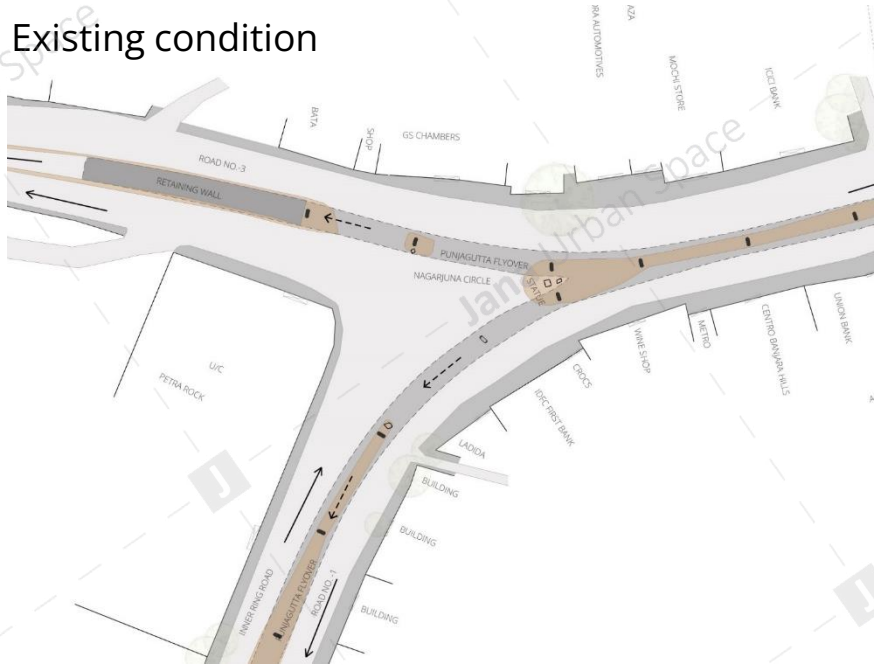
Trails for intersections at Hyderabad

- GHMC's proposal to improve safety and incorporate pedestrian friendly infrastructure at key intersection in Hyderabad.
- GHMC and the traffic police wanted to test the designs on ground to ensure vehicular movement was not hampered
- Material supplied by GHMC and traffic police with support from them for enforcement



The process for trail implementation

Existing condition



Mark out plans for trials

Trails for intersections at Hyderabad



Trails for intersections at Hyderabad



Trails for intersections at Hyderabad



Trails for intersections at Hyderabad- key learnings

- While most of the intersections had minor tweaks based on the ground condition, while only few needed more revisions.
- Enforcement and design go hand in hand as seen in the case below – traffic caused by the right turning traffic blocking the way of the straight moving traffic.
- So trials are an effective tool to also highlight areas that require more enforcement
- The final design have been approved and tenders have been floated for these intersections.



St Marks Plaza, Bangalore

Chalk marking on ground tracing the intervention and shown that vehicular movement is streamlined as well as the undisturbed area meant no traffic movement occurred in that area as well.

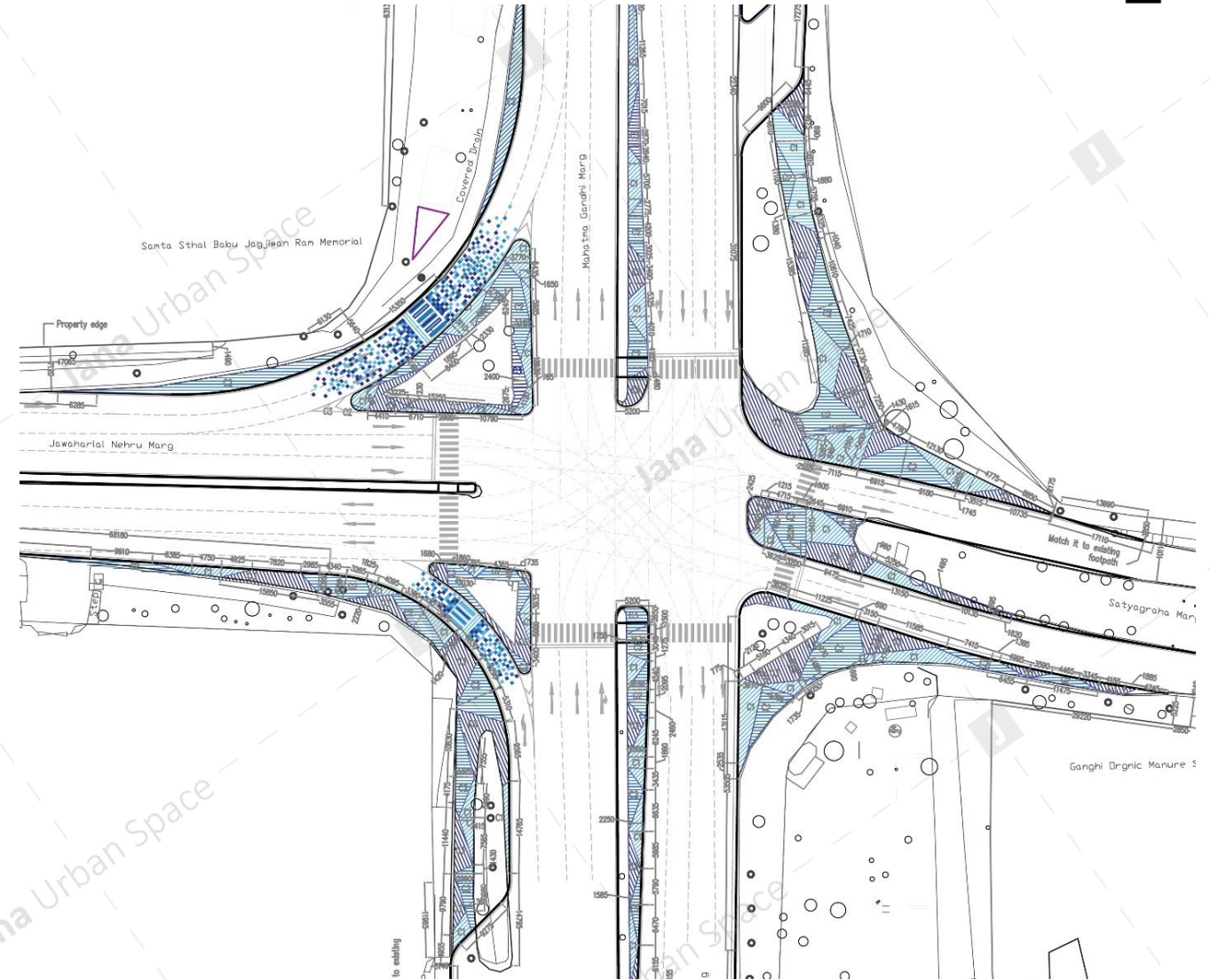


Trails for intersections at Delhi

- An more extensive mode of TU implementation done for the SaveLife foundation.
- More visually impactful as it focused on painting and adding cones and tapes to demarcate the area
- The trial period was for a month with the paint being touched up twice in the period.
- Budget was around 10lakhs per intersection
- Done to highlight the need for improving black spots in Delhi. But little action towards implementation.



Tactical urbanism proposal



Rajghat Intersection



Source : SaveLife foundation and JanaUSP

Rajghat Intersection



Source : SaveLife foundation and JanaUSP

Impact assessment methodology

A. Vehicular Impact Analysis

1. **Analysis of maximum clearance speed** - The fastest of clearance speeds that each type of vehicle has moved within the intersection (in green time) has been calculated.
2. **Vehicle to vehicle conflict** - The counts of conflicts between a reference vehicle with the target vehicle has been calculated at the intersection for both before and during TU intervention scenarios.

B. Pedestrian Impact Analysis

1. **Pedestrian Exposure Distance** - It captures the pedestrian exposure distance to on-going traffic before and after the interventions
2. **Pedestrian Exposure Time**- It is calculated by assuming the pedestrian walking speed or on the basis of observation captured at the site.
3. **Pedestrian vs Vehicle conflict**
Analysis of the overall conflicts between pedestrians and various modes of transport



Source : SaveLife foundation and JanaUSP

Impact assessment

- It was observed that there is a reduction of **10%** in maximum clearance speed during **peak hours** and a reduction of **2%** during **non-peak hours** in the TU trial scenario – effective traffic calming measures
- It was observed that for **peak hours**, there is a reduction of **45%** in Vehicle to Vehicle conflict and for **non-Peak hours**, there is a reduction of **60%** in the TU trial scenario.
- **An overall reduction of 50% is observed in vehicle to vehicle conflicts at the intersection in the TU trial scenario.**



Source : SaveLife foundation and JanaUSP

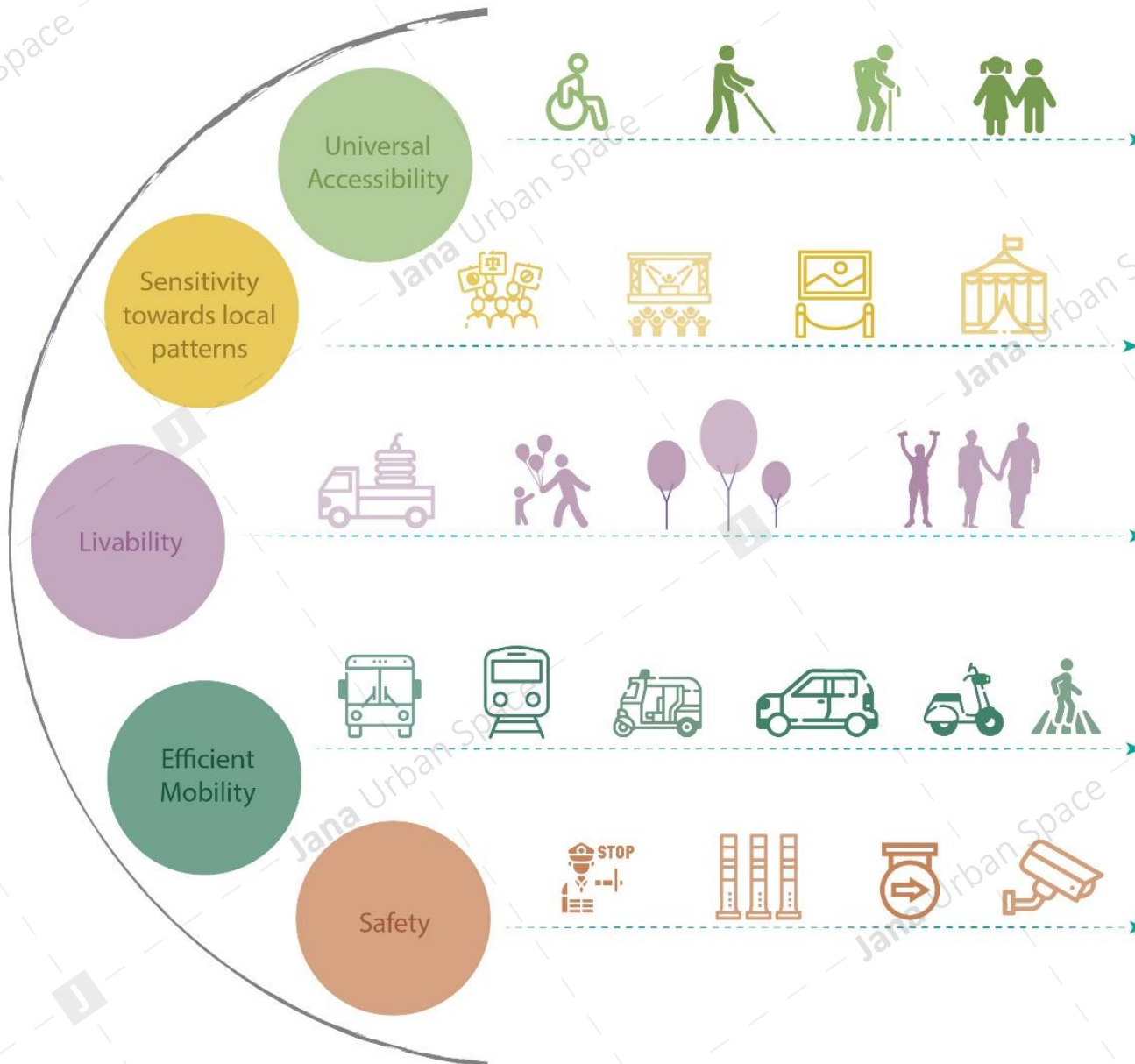
Impact assessment

- The proposed intervention **reduces pedestrian distance exposed on road by 47%** i.e. 170 m to 90 m.
- The analysis suggests that the intervention **reduces pedestrian exposure time by 30%**
- The proposed design has led to an **increase of 25%** in terms of **area of public realm**.
- It is observed that the overall conflicts between pedestrians and various modes of transport are **reduced by 32%** during intervention. Also, for mode-wise conflicts, there is a **reduction of 38% in conflicts with cars and 33% with motorcycles**.



Source : SaveLife foundation and JanaUSP

Expected outcomes



Efficiency through improved geometry

- Reduce conflict areas
- Uniform travel lanes
- Maintain the requisite number of lanes
- Reclaim residual space

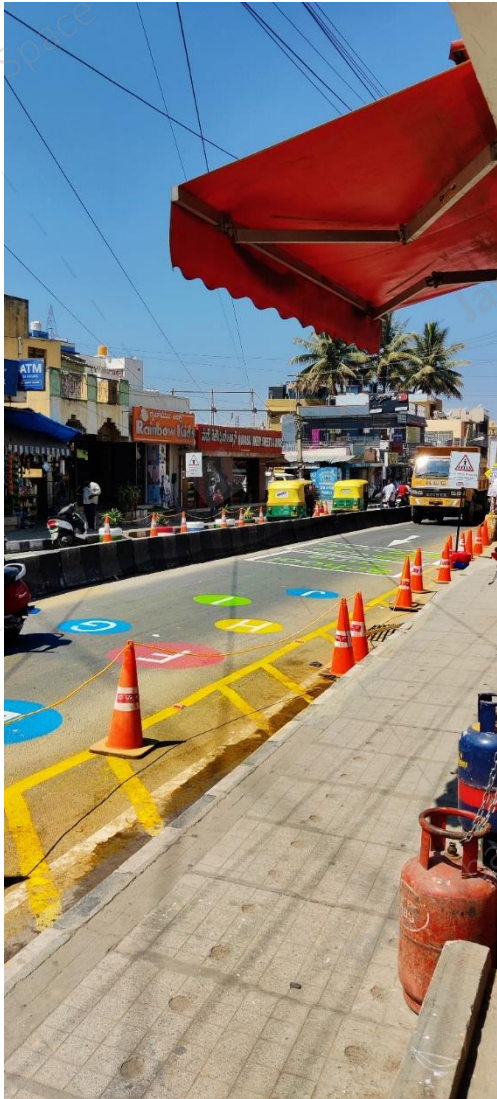
Minimal change with maximum impact

- Provides the agency with a chance to test solutions
- Gauge user perception before execution
- Create awareness among the various stakeholders

Safety for all users

- Provide dedicated space for pedestrians
- Designated pedestrian crossings
- Implement traffic calming measures
- Discourage any non permitted traffic movement

Other TU interventions



- TU trials in the vicinity of a school in Bangalore to establish safe cycling and walking routes to school for the children.
- Proposals included
- Traffic calming measures - to reduce vehicular speed and avoid blind turns
 - Safe crossings
 - Signage and colourful markings on ground to emphasise the school zone