

LIVING STREETS

Volume 2

ITO Bus Stop, Delhi

June 2024



'Urban Design Square' is committed towards creating safe, sustainable and harmonious communities; making life happen. It focuses on empirical research to build 'evidence' for a participatory urban practice.

www.urbandesignsquare.com



'DesignOGC' is an urban innovation studio focused on co-creating prosperous neighborhoods, through the design of community-centric spaces and products.

www.designogc.com

Project Team

Denita Magdalene D | Vanshika Shah
supported by Akshat Chadha | Bavish S M | Kritika Lakhe | Muskan Priyadarshini

Project Lead

Sophiya Islam | Sunjana Thirumala Sridhar

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TFO Bus Stop, Delhi

Preface

This is the second volume of 'Living Streets' where we dig deeper into the influence of urban design and planning on our urban environments. This volume, crafted by Urban Design Square in collaboration with DesignOGC, invites professionals and advocates of community-centric design to reflect on a crucial question: **How can we improve the design and development of bus stops to better adapt to the evolving needs of their stakeholders?**

Urban design is fundamentally about serving the community—those who live, work, and interact within these spaces. However, the myriad stakeholders who shape these spaces—from inception to decision-making to implementation and maintenance - are often underestimated. We often see end-users distanced from the decision-making and design processes. On the other extreme - decision makers are distanced from the critical input of stakeholders who affect the functioning and success of these spaces.

In this edition, we focus on a busy bus stop in Delhi, examining it through the lens of its diverse users and stakeholders. From everyday users, whose lives are directly impacted by these facilities, to bus drivers and the agencies making decisions aimed at serving the community's best interests, we consider multiple perspectives.

We encourage our readers to engage with this publication by considering three questions.

How can bus stops be improved to better serve the community's needs?

What critical factors might decision-makers be overlooking?

What essential elements might designers be missing?

We look forward to building a dialogue, essential for creating spaces that can continuously adapt to meet the changing needs of our cities and people.



01
About
the Study

Background

In recent times, the government of Delhi has come up with various initiatives to promote the use of public transport, including, free bus rides for women passengers, introduction of a first of its kind luxury bus service, and introduction of mohalla buses. Despite this, the bus ridership in Delhi is dipping.

The first volume of Living Streets published by Urban Design Square reveals that there are underlying patterns of human behaviour across various contexts.

Building on that, the first-hand observations around three bus stops in Delhi - ITO, GAIL Bhikaji Cama Place, and Vasant Kunj Sector-A reveal several shortcomings that hinder its effective usage. Lack of seating spaces in and around bus stops, unclear signage, and lack of shade are some of the key observations that make it challenging for users to navigate the city. Furthermore, bus stops often fail to accommodate the diverse needs of passengers, including those with disabilities. The lack of accessibility features such as ramps or designated spaces for individuals with mobility challenges exacerbates the discomfort experienced by a significant portion of the population.

This gap in the design and functionality of bus stops creates a sense of discomfort among the commuters, undermining the government's efforts to promote the use of public transportation as a sustainable and efficient mode of travel. Addressing these issues is essential not only for enhancing the overall commuter experience but also for realising the broader goals of urban mobility and environmental sustainability.



ITO Bus Stop, Delhi

The design and functionality of bus stops play a pivotal role in shaping the experience of public transport, particularly in densely populated urban areas like Delhi, India.



Aim of the Study

The primary objective of this study is to comprehensively analyse the state of bus stops in Delhi with a multifaceted approach aimed at understanding their design and functionality with respect to the commuter usage and the complexity of the intersecting roles of government authorities.



Usage analysis

Through structured data collection and analysis, the study aims to identify patterns of usage exhibited by commuters. This will include understanding the peak hour activity, average waiting time, seating arrangements, shelter adequacy, provision of amenities, and wayfinding systems, which are essential for commuter comfort.



Stakeholder analysis

Through secondary data, the study aims to identify and analyse the conflicting and complex roles of intersecting government authorities in the design and functioning of bus stops in Delhi. This will include a comprehensive analysis of the stakeholder ecosystem to understand the challenges related to decision-making processes, communication, and resource allocation.



ITO Bus Stop, Delhi

The study aims to expand the understanding of bus stops as public places that promote public transport as a reliable and comfortable mode of commute.

Project Timeline

Project Framework The team prepared a timeline and a task list to organise the study	Week 1	
	Week 2	Structured Observations First site visit conducted to note down all the activities at and around bus stops
	Week 3	Based on this, a list of activities was prepared and activity mapping was conducted accordingly over a period of two weeks
Data Analysis The collected data was analysed and a first draft of the narrative was crafted	Week 4	
	Week 5	Stakeholder Analysis Identification and analysis of the ecosystem of stakeholders was carried out through secondary sources to assess who influence, decide, implement and use the bus stop
	Week 6	
	Week 7,8,9	Collating inferences All inferences were collated together to curate a conclusive narrative
Way Ahead All inferences were reflected upon to identify a way ahead	Week 10,11	

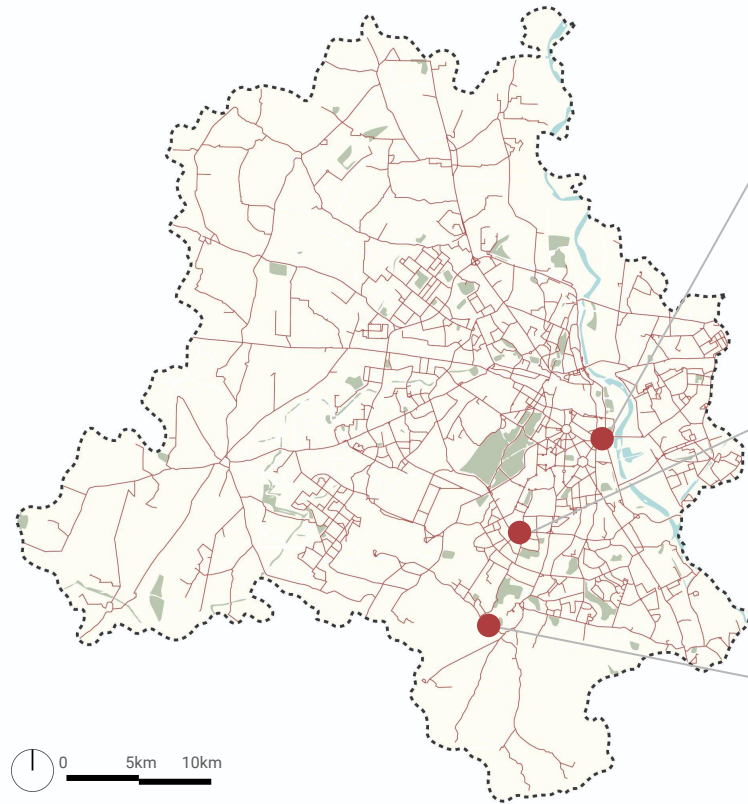
02 Site Observations



First Impressions

Three bus stops were studied in different areas of Delhi to understand their usage patterns and peak footfall timings.

It was observed that all three bus stops had similar issues - lack of accessibility to buses, congestion on the streets, lack of shade, inadequate seating etc.



Bus Route Map, Delhi

ITO Bus Stop

This bus stop serves institutes in the ITO area and caters to a heavy footfall throughout the week, both in morning and evening hours.

GAIL Bhikaji Cama Place Bus Stop

This bus stop serves a commercial area and caters to a heavy footfall predominantly during evenings on weekdays.

Vasant Kunj Sector-A Bus Stop

This bus stop serves a residential area and caters to a heavy footfall predominantly during evenings on weekdays.

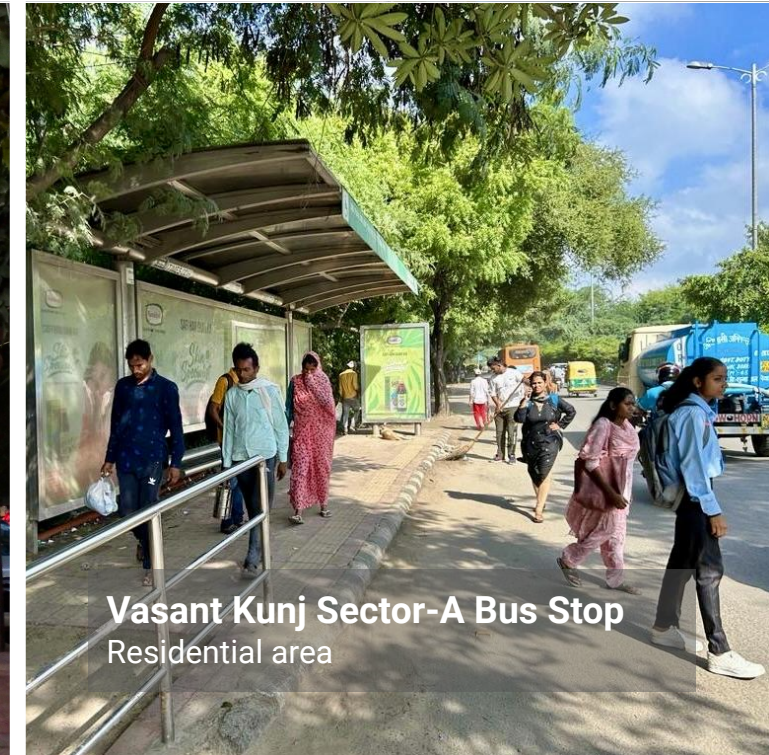


ITO Bus Stop
Institutional area

“Owing to high footfall and a dynamic usage pattern, ITO was selected to conduct a detailed study.”



GAIL Bhikaji Cama Bus Stop
Commercial area



Vasant Kunj Sector-A Bus Stop
Residential area

ITO Bus Stop

First hand observations are documented at the bus stop across various timings - both peak and off-peak - over a period of two weeks to understand various factors that contribute towards the overall commuter experience.

The area of study is limited to the immediate context of the bus stop, including the activities within 50m distance around the bus stop.

User Comfort

The study examined the availability of shade at the bus stop, and assessed the availability of seating spaces within the bus shelter.

User Safety

The study examined the proportion of female passengers throughout the day to understand safety perception of the bus stop.

Amenities

The study investigated a range of amenities available in close proximity to the bus stop that could enhance the waiting experience for users.

Accessibility

The study examined the accessibility of the bus stop, especially the accessibility of buses from footpath and the availability of ramps, railings etc. for boarding/deboarding buses.



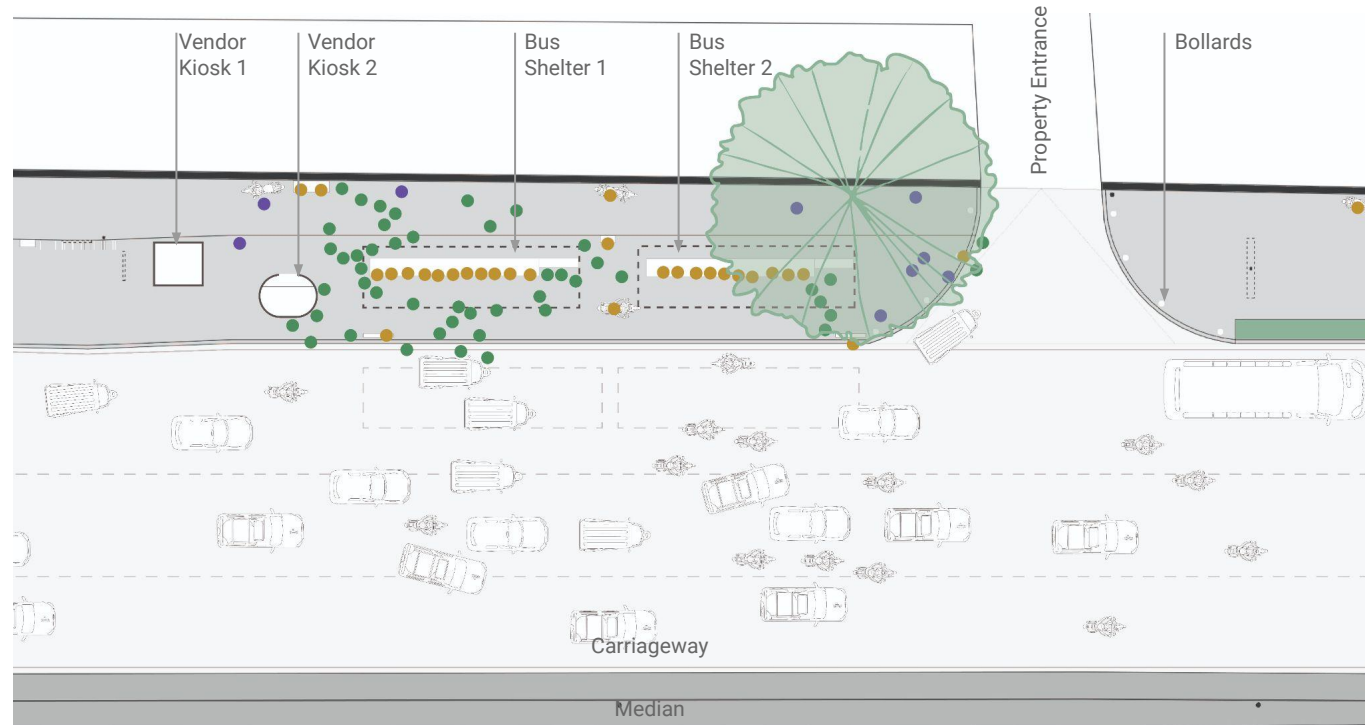
ITO Bus Stop, Delhi

The study focuses on the ITO Bus Stop in Delhi, conducting a first-hand usage analysis over a period of 2 weeks.

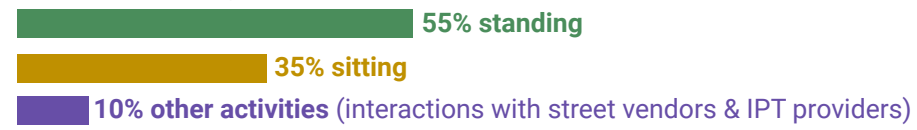


Seating accommodates only 35% of the users

out of 85 users observed between 5.15 to 5.30pm



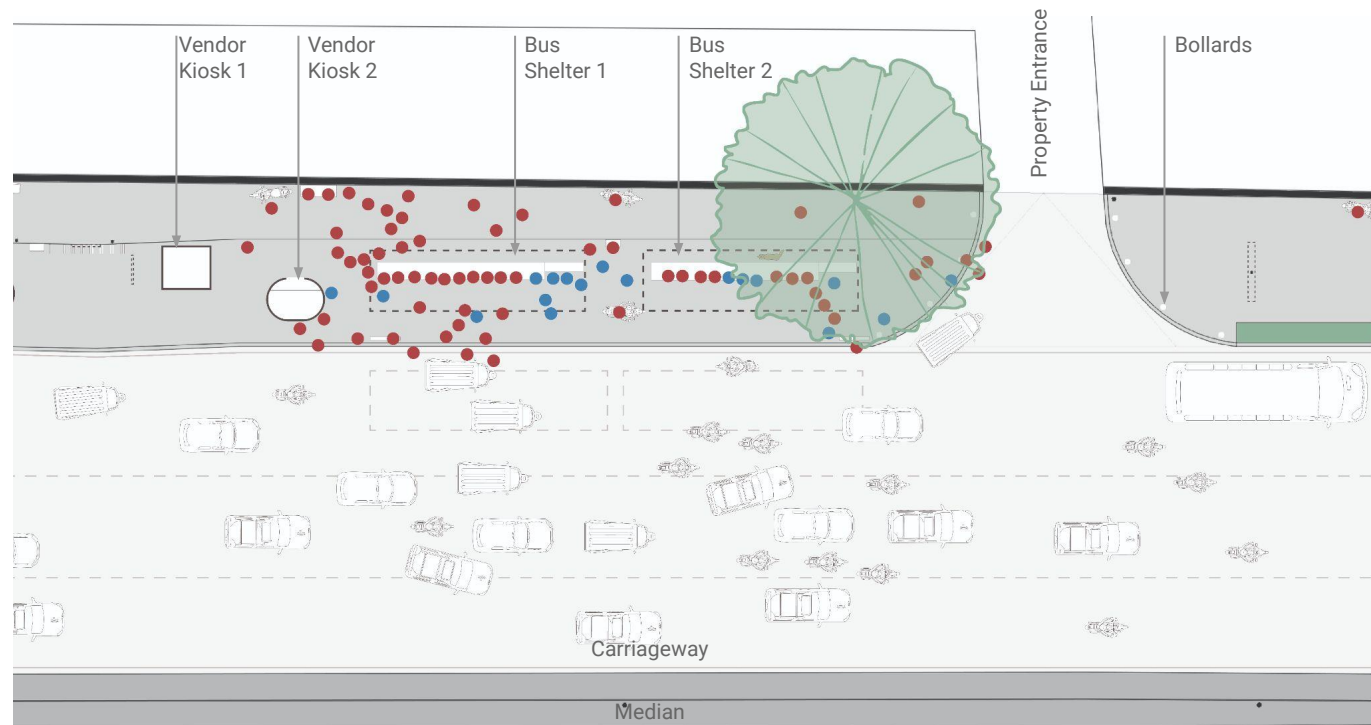
ITO Bus Stop



ITO Bus Stop, Delhi

Only 20% women users at the bus stop

out of 85 users observed between 5.15 to 5.30pm



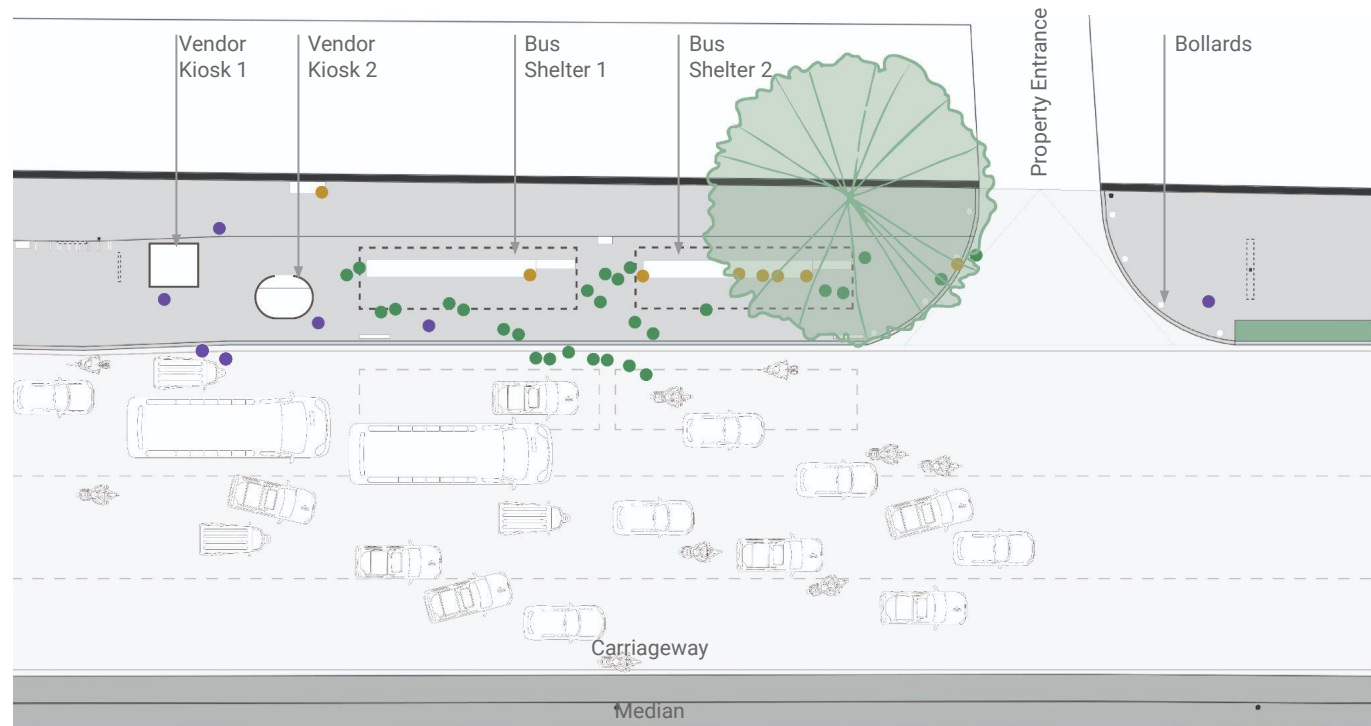
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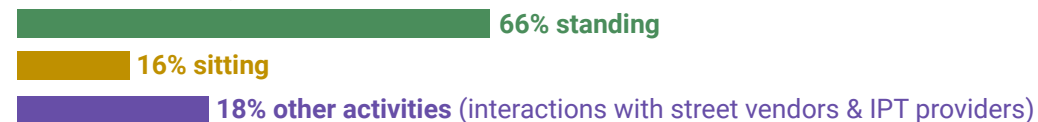
ITO Bus Stop, Delhi

Only 18% users engage in other activities

out of 45 users observed in the off-peak hour between 2 to 2.15pm



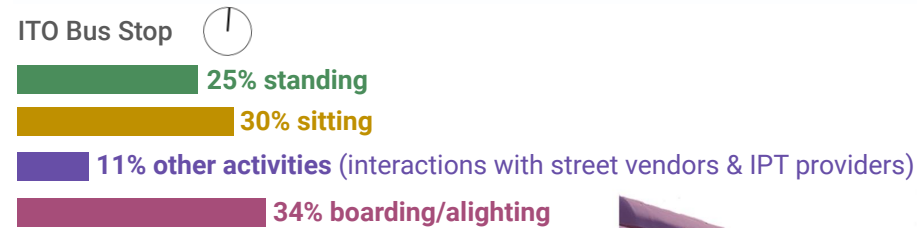
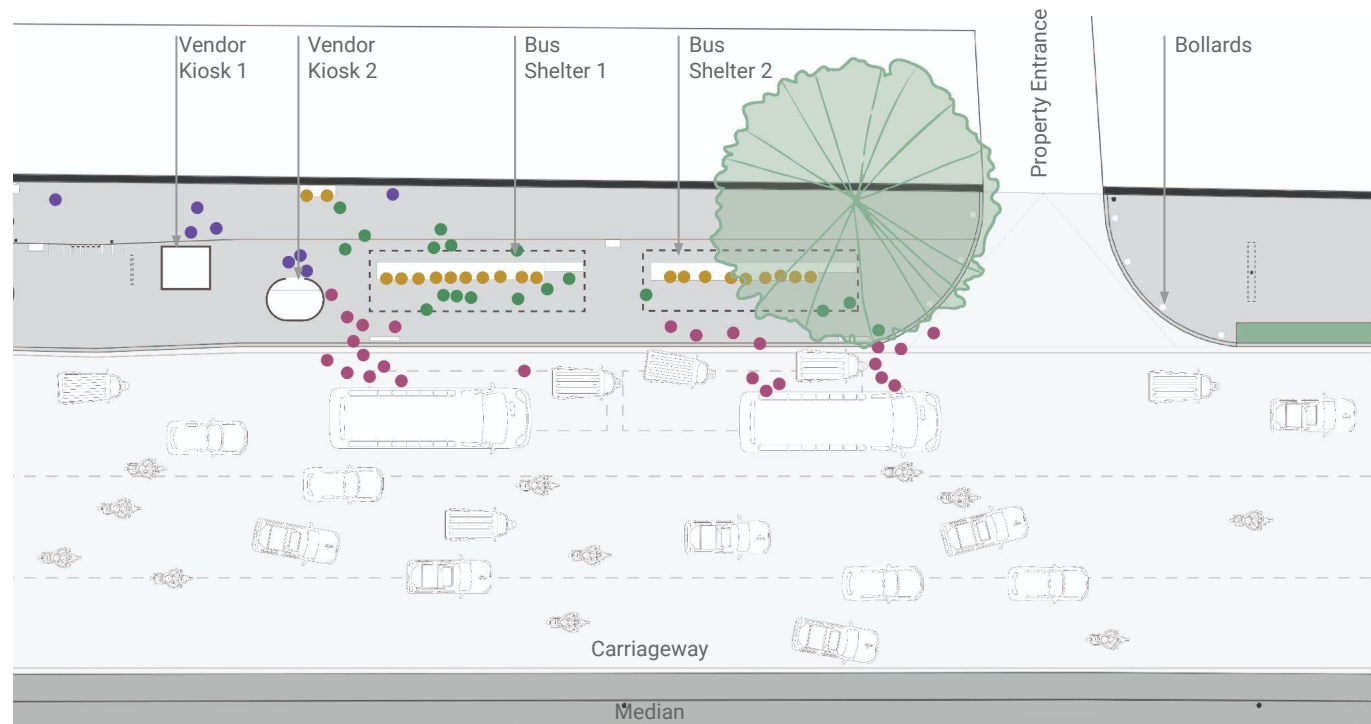
ITO Bus Stop



ITO Bus Stop, Delhi

No ramps to access the bus

70 users were observed in the evening peak time between 5 to 5.15pm



ITO Bus Stop, Delhi

03
Stakeholder
Ecosystem Study



ITO Bus Stop, Delhi

Stakeholder Ecosystem Study

A diverse set of stakeholder are involved behind the scenes in the complexities of operating a transportation system, each with their own set of roles and responsibilities.

As understood from the previous chapter 'Site Observations', it is evident that commuters face several issues like lack of shade, shortage of seating spaces, longer waiting time, driver not stopping at the right stop, buses not following the timetable, lack of bus schedule present at the bus stop and more.

To be able to address these challenges effectively and implement changes, understanding the stakeholder ecosystem becomes important.

Each stakeholder in the ecosystem has different needs, priorities, and expectations. Some stakeholders might prioritise accessibility, while others focus on safety and environmental impact.

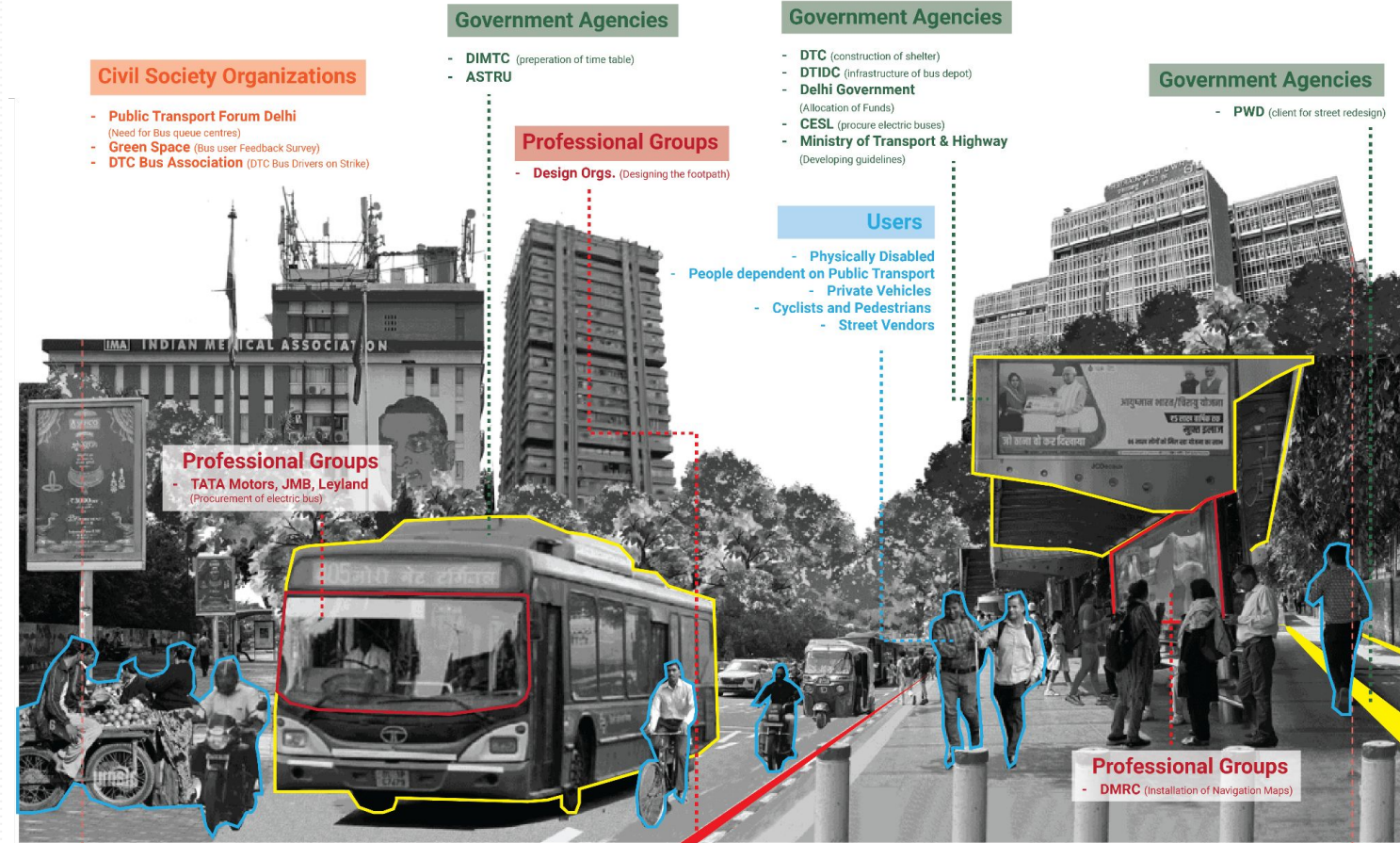
By visualising the stakeholder ecosystem, one can understand how their roles, responsibilities, or interests intersect and where potential conflicts or synergies may arise. It also enables the decision makers to predict how different stakeholders might react to a decision.

The stakeholder ecosystem can be visualised in a variety of ways. This study adopts the RACI Model, which lays out who is Responsible for taking action, who is Accountable for ensuring the action is completed successfully, who needs to be Consulted for their input, and who should be Informed about the action taken.



ITO Bus Stop, Delhi

Having a comprehensive list of stakeholders helps decision-makers to ensure that all the relevant perspectives are considered.



The RACI model of visualising the stakeholder ecosystem organises stakeholders according to their responsibilities and makes it easy to understand and comprehend the ecosystem.

Stakeholder RACI Model

For preparing the RACI model, the stakeholders are divided into five categories, based on their interests:

1. Government Agencies

Regulatory oversight, policy development, public funding allocation, and decision-makers in the executive area positioned at the national and municipal levels.

2. Expertise and Service Providers

Contributing specialised knowledge and expertise, operational insights, and essential services to support effective planning, implementation, and management.

3. Community Advocates and Influencers

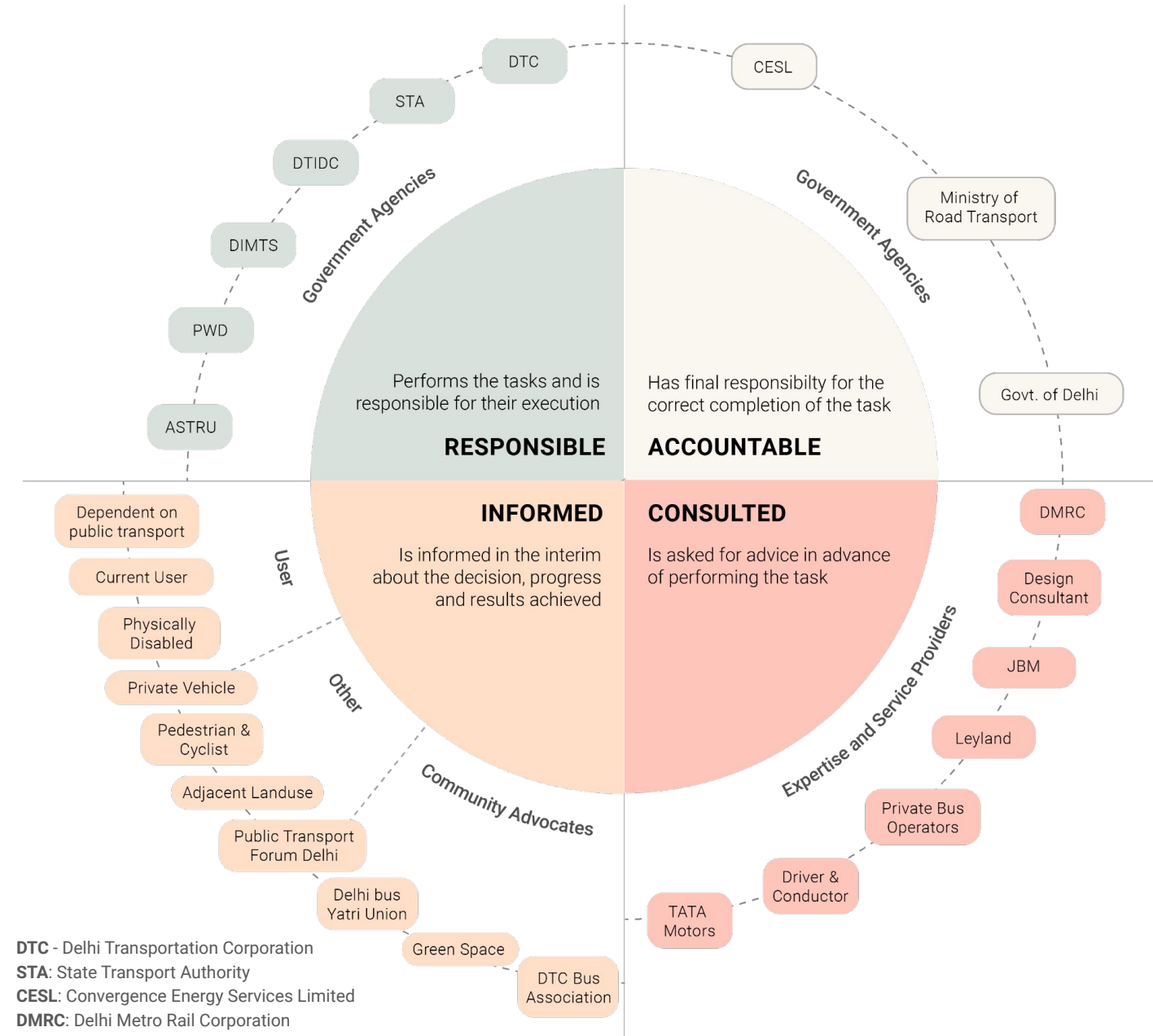
Understanding, amplifying, and advocating for community needs, bridging the gap between community and government, and wielding influence to shape policies that prioritise community welfare

4. Users and Stakeholder Groups

Seeking convenient, reliable, and affordable public transport options. Interest in accessible and inclusive services that cater to diverse user needs, including individuals with disabilities.

5. Others

Varied and specialised interests that may not fall under any categories mentioned above.



DTC - Delhi Transportation Corporation
 STA: State Transport Authority
 CESL: Convergence Energy Services Limited
 DMRC: Delhi Metro Rail Corporation
 JBM: Jay Bharat Maruti Ltd.
 DTIDC: Delhi Transport Infrastructure and Development Corporation
 DIMTS: Delhi Integrated Multi-Modal Transit System Limited
 ASTRU: Association of the State Road Transport Undertakings

RACI Model for Delhi Bus Stops

04
Way
Ahead



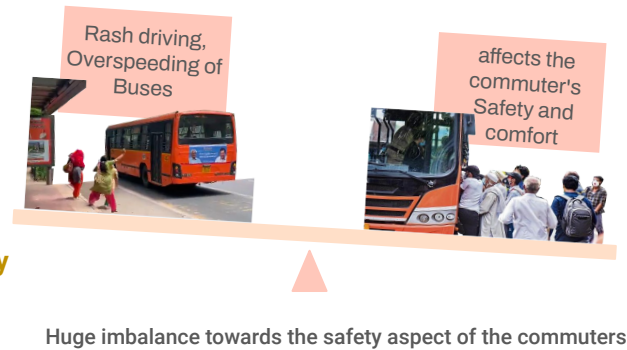
ITO Bus Stop, Delhi

Bus Stops as Places in the City

Commuter comfort

01 Buses in Delhi are frequently reported for overspeeding, rash driving, and poor maintenance (*the India Today, April 2, 2019*). These issues significantly impact commuter safety and comfort, leading to physical and mental distress.

The government should launch public campaigns to educate commuters about safety precautions and reporting mechanisms for incidents of unsafe driving. This would ensure community surveillance for buses, enhancing overall safety and comfort.



02 There were 703 accidents involving DTC and cluster buses over the past five years (*The Indian Express, 2019-2023*). This raises significant safety concerns for commuters and undermines their confidence in the bus transport system.

Collaborations between various stakeholders, including, transportation authorities (DTC and DIMTS), private bus operators, and commuters should be prioritised to open a dialogue on road safety and further to develop effective solutions to enhance the commuter comfort at bus stops.



Statistics of accidents involving DTC and Cluster Buses

Inclusive environments

03 Among 500 women surveyed, 82% reported buses failing to stop at designated stops, and 54.2% experienced discrimination and derogatory comments due to the free bus scheme (*Greenpeace, June-July 2023*). This restricts women's ability to use public transportation safely and efficiently.

Awareness campaigns should be launched for bus operators and incentives should be provided to them against the cost of the women's seats for ensuring a safe commuting experience for women.



Statistics of women facing discrimination

04 69% of women feel unsafe due to the lack of live bus information, and 79% are concerned about inadequate street lighting at bus stops (*the Urban Catalysts, March 2019*). The government has taken measures to enhance safety by introducing buses with GPS, panic buttons, one Delhi app, and CCTV.

Infrastructure at and around bus stops should be enhanced to ensure activity and adequate lighting for women's safety. Additionally, organising awareness campaigns to inform women about existing safety measures would optimise their usage.



Safety concerns for women commuters

Bus Stops as Places in the City



Integrated amenities

05 The government's efforts to reduce pollution by adding 1,370 electric and 110 CNG buses to the fleet are redundant, given the decline in bus ridership (*the Down to Earth, March 22, 2023*). In addition to introducing new buses, it is essential to understand and address the needs of commuters.

Space should be allocated for Intermediate Public Transport (IPT) to alleviate congestion and improve access to bus stops. Additionally, integrating street vendors around bus stops can transform these areas into vibrant community hubs, promoting buses as a preferred mode of transportation.

06 Despite a 24% increase in the number of buses from 2017 to 2022, the daily passengers per bus have dropped significantly—44% for DTC buses and 53% for cluster buses (*the Times of India, March 3, 2024*). As the government has to bridge the gap between earnings and cost per kilometer, more kilometers are driven by bus operators with fewer passengers, incurring higher costs to the government. This highlights a mismatch between the number of buses and the passengers they serve in Delhi.

Public consultations should be organised to understand the commuter movement patterns and need for amenities to create welcoming bus stops that promote usage of buses.



Increase in electric and CNG Buses



Mismatched understanding between what commuters want and what they are provided with



More kilometers are driven by the bus

Current situation of the Bus Logistics in Delhi



Accessible Infrastructure

07 Despite the government's efforts, such as launching buses with hydraulic lifts and limiting the procurement of non-disabled friendly buses, many users still face challenges due to the lack of accessible infrastructure at bus stops. This forces several users, including people with disabilities, women, children and elderly to depend on private vehicles.

Infrastructure at and around bus stops should be improved to integrate accessibility features such as ramps, tactile paving, and railings to ensure inclusion of all users.

08 Despite the Delhi Transport Corporation (DTC) operating over 3,600 wheelchair-friendly low-floor buses, accessibility issues persist at bus stops. This significantly impacts people with disabilities, restricting their ability to use public transport independently and forcing them to rely on private vehicles or less convenient alternatives (*Hindustan Times, Nov 2021; TRID study, 2024*).

The installation of ramps at all bus stops should be prioritized, ensuring that footpaths leading to bus stops are accessible and obstruction-free, and that buses are directly accessible from the footpaths. Additionally, it is essential to train staff to assist commuters with disabilities.



Number of new Low Floor Buses added by DTC



Lack of accessibility to buses

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contact@ubandesignsquare.com

sunjana.ts@designogc.com