

WALKABILITY, ACCESSIBILITY & SAFETY AUDITS: ENSURING LAST MILE CONNECTIVITY

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BACKGROUND

According to World Bank, there are about 80 million people with disabilities living in India. Add to that, over 130 million senior citizens, a few billion pregnant women and families with young children in the country, who are referred as persons with reduced mobility. Hence, for roughly 80% of the population coping with lack of accessible and safe pedestrian infrastructure has become an everyday struggle.

WALKABILITY, ACCESSIBILITY & SAFETY AUDIT

Samarthyam, a civil society organization in collaboration with Clean Air Asia and Delhi Development Authority conducted audit of Nehru Place (business hub in south Delhi), as a model project of providing walking and cycling facilities with focus on safety of women. The objective was to give recommendations to concerned agency/ies for time bound implementation and make these usable, friendly, safe for “all” pedestrians irrespective of their gender, age, disability. The broad aim is to ensure safe and independent commuting; convenient, quick access & exit and usage of all areas to provide ‘inclusive design’ and through that achieve social inclusion. It considers children & adults with diverse disabilities.

METHODOLOGY

The three areas identified cover a wide gamut of land use and user types such as:

- Main road with cinemas and Delhi Metro Rail connectivity
- Bus shelters and approach roads to Plaza area
- Plaza area has commercial office spaces, retail shops, eateries and hawkers

Audit methodology is divided into two parts:

1. Pedestrian Preference Study -highlight gaps, missing amenities, raise issues and to get pedestrians preferences
2. Universal Accessibility and Safety Audits (Photo 1) -to assess pedestrian safety and accessibility

During the audit, following parameters were surveyed:

- Walking path modal conflict
- Availability of walking paths and crossing points
- Quality of crossing points
- Public amenities
- Accessible infrastructure
- Safety from crime
- Motorists’ behavior
- Obstructions

RESULTS/ FINDINGS

In the pedestrian preference survey a total of 315 pedestrians, both male and female were covered. There is significant overlap between two sets of data audits and PPS, viz. poor crossing conditions were revealed in both. Where there were a number of poor quality crossing points identified through the accessibility audit, pedestrians commented on bad motorist behavior, air pollution and unavailability/un-maintained basic services such as footpaths, proper illumination, toilets, drinking water, etc. Under the most important factors required, following mandates were highlighted:

- 68% of respondents said that the area to be immediately made accessible
- 3% respondents said they need wider, levelled and clean footpaths
- 6% respondents said improved street lighting is required on priority

CONCLUSION

There are codes and guidelines in India that mandate safe & accessible walking and cycling infrastructure. While these guidelines provide the necessary framework, the implementation and enforcement is imperative to further the goal of universal accessibility and safety. Also, seamless travel chains from ‘Origin to Destination’ - including the pedestrian access, the vehicles, and the transfer points is vital. If any link is inaccessible, the entire trip becomes difficult and requires taking an indirect route, creating the barrier of longer travel times. If an accessible building cannot be reached, a hostile environment is created. The goal must be for people to have access to all vehicles and the full-service area, as well as the pedestrian environment.

INTRODUCTION

India has a disabled population of approximately 70 million or 7% of its population. An additional 20-30% of the population is rendered less than able or temporarily impaired (such as people with fractures, senior citizens, pregnant women, families with young children, people carrying heavy luggage, etc.) by environmental barriers. These include people with temporary health problems, the aged and the temporarily immobile. Access to public infrastructure and facilities is one of the greatest impediments to education and employment of persons with disabilities and the aged. If an accessible building cannot be reached, a hostile environment is created, and the benefits of its access are then not known or not reachable.

The Rights of Persons With Disability Act, 2016, calls for non-discrimination in built environment and in the transport infrastructure. The Indian Roads Congress code, IRC 103: 2012 Guidelines for Pedestrian Facilities and UTTIPEC Street Design Guidelines have included access standards in streetscape and road infrastructure to implement Universal Access features. The IRC Guidelines are applicable throughout India. UTTIPEC Street Design Guidelines standards are applicable to Delhi/NCR, which mandates that all road owning and civic agencies are required to comply with street designs standards to make walkability safe, dignified and comfortable for “all” pedestrians and public transport users irrespective of their gender, age, disability.

While these guidelines provide the necessary framework, the implementation of these accessible requirements is imperative to further the goal of Universal Accessibility to create seamless travel chains from Origin to Destination. For a completely accessible travel chain it is important that a journey is accessible from its origin, along the commute/ walk to public transportation and from

it to the final destination. Lack of access at any point in between negates the benefits of Accessible Public Transportation systems.

Samarthyam in collaboration with Clean Air Initiative for Asian Cities (CAI-Asia) have conducted WalkAbility Audits of three prime locations to evaluate the accessibility of street and road infrastructure, the interstitial spaces between buildings from and to transport terminus and key destinations in Delhi for persons with disabilities, reduced mobility, pregnant women, elderly persons, children, persons carrying luggage and those with temporary ailments.

The audit team comprise of the user groups i.e. persons with disabilities (PwDs), access auditors, women groups, urban planners, architect, engineers and concerned officers in charge of the area audited- on how to make streets/urban infrastructure more user friendly and safe. The audit team was joined by representatives from UTTIPEC and other rights group.

METHODOLOGY

Audit Area

Three key public places are audited with mixed land use comprise of busy commercial destination, residential, educational, institutional and monument/public space. Both sides of the stretch are covered including day and evening conditions and travel route to & from it from a public transportation hub such as:

- A. **Connaught Place** – D Block between radial road no. 5 & 6- approx. 3.5 km area
- B. **Lodi Road**- edge of Lodi Garden to Archbishop Makarios Marg crossing - approx. 3.5 km area
- C. **Sarai Kale Khan bus terminus**- approx. 3 km area

Focus on an entire trip chain from Origin to Destination

Strategies to ensuresafe, continuous, low energy, equitable and economical commuting between place of origin and destination, convenient and quick access to all areas benefitting all sections of the society are used to determine design interventions required including construction, maintenance and public awareness of the project.

Trip chain includes-

- Origin
- Walk/ commute
- Wait for Transport
- Board
- Travel
- Alight
- Walk/ Commute to Destination

Important elements considered are

1. Pre-journey planning information including signage/ maps/ accessible route information;
2. Adequate space requirements including clearances, widths, heights, rest spaces;
3. Level differences – steps, ramps, kerbs, escalators;

4. Clarity of route- wayfinding tools including colour contrast, materials, lighting, absence of clutter;
5. Road crossings, traffic signaling, safety features including women, children and elderly safety;
6. Equitable access to transit terminus, toilets, information kiosks and other facilities

WalkAbility Audit

- Review of sites (preliminary visit) with the audit team for area familiarization
- Field Surveys - use of CAI Asia WalkAbility tool and checklist (compiled from UTTIPEC Street Design Guidelines checklist and Samarthyam's Access Audit checklist)- to aid in reviewing sites and highlight applicable cultural context, safety and usage issues
- Use of digital camera to take photographs
- Make notes, document observations and take measurements of existing elements
- Discussion with concerned representatives of construction and civic agency in the area audited

WALKABILITY CHECKLIST PARAMETERS

The parameters surveyed are the following:

1. Walking path modal conflict

This parameter determines the conflict pedestrians face when either walking along the walkway/ roadway or crossing the road. (While conflict with other NMT modes at higher speeds may be injurious, it has not been considered here)

2. Availability of walking paths

The parameter checks whether walking paths are available or not; and if present their condition, cleanliness, maintenance etc.

3. Availability of crossing points

The availability and number of crossing points to get to the other side safely

4. Quality of crossing points

Continuing with parameter 3, this parameter determines the quality of space, time and grade in a crossing

5. Amenities

This parameter enhances the quality of the walk and greatly helps in promoting walking and tourism too. Various amenities such as lighting, shade, information signs etc. are measured

6. Accessible infrastructure

This parameter measures the infrastructure in place to measure the universal accessibility features or the lack of it towards people with disabilities and reduced mobility (senior citizens, pregnant women, people with temporary ailments & medical conditions, people carrying heavy luggage and families with young children), including kerb ramps, handrails, tactile paving, auditory & pelican signals, etc

7. **Safety from crime**

This parameter should be assessed preferably by a woman to understand their vulnerability on the streets. Elements such as setback, lighting, building frontage (eye on the street), speed of vehicles, vendors and others can make a street safe or unsafe

8. **Motorists' behaviour**

Motorists' behaviour towards pedestrians on the road shows how cultured a city is

9. **Obstructions**

This measures the encroachments - parked vehicles and utilities that usually take up precious pedestrian space

AUDIT HIGHLIGHTS

Audits of Block D, Connaught Place; Lodi Road and Sarai Kale Khan were conducted to assess pedestrian safety and accessibility. The three areas identified cover a wide gamut of land use and user types. While Block D, Connaught Place has commercial office spaces, retail shops, cinemas and DMRC connectivity; Lodi Road is home to Lodi Garden, a number of cultural and educational institutions including India Habitat Centre, India Islamic Centre, Chinmaya Mission, Air Force Bal Bharati School and Dayal Singh College to name a few and residential colonies. Sarai Kale Khan is key transport terminus, with a bus terminal for commuters within and beyond the state. It is also proximate to the Nizamuddin Railway Station.

Major renovations have been, are in the process of, or are envisioned for each of these public spaces. For the Common Wealth Games 2010, Lodi Road was completely renovated. Despite detailed guidelines for accessible design being in place, the resulting construction demonstrates that if not implemented and subsequently maintained correctly, these interventions fall woefully short.

At Sarai Kale Khan, Inter State Bus Terminus, the old bus terminus is completely inaccessible, with little intervention over time; while the new terminus requires some modifications that will make it accessible. However, due to the bus stands located on the main Outer Ring Road, and the poor implementation of streetscape design and maintenance in this area, it is hard to access.

Connaught Place (CP) proved to be an encouraging space to audit, since it is at a key juncture of renovation, and recommendations made can be implemented immediately, at the same time, engaging and imparting the technical and holistic needs of accessible features to the agencies involved. Along with an understanding of the site constraints this allows for all the stakeholders to be involved in creative solutions for pedestrian safety and accessibility in the most effective way. It also reduces the risk of prescriptive recommendations being ignored due to the context, construction schedules or understanding. While CP is inherently at one level and some accessible features, such as kerb ramps, tactile paving and accessible toilets were implemented, by providing continuity and attention to detail; this vibrant public space can easily be made a completely accessible role model.

Among pedestrians top 5 requirements, as conveyed by the people in all the three areas are:

1. Wider, levelled and clean footpaths with kerb ramps;
2. No obstructions such as open drains, trees and light poles;

3. Reduced vehicle speeds on the road;
4. Safe crossing facilities with Zebra and STOP lines and
5. Table top and Pelican crossing;

Audit Findings:

- Accessible design features are incorporated in the drawings showed by EIL.
- Footpath height around the Blocks is high between 200-250mm.
- Completely level pathways and corridors, wide and with good non-slip and even flooring. Tactile pathways provided, and of good quality. However, they lack continuity, and color contrast. These can be painted.
- Organized parking and sidewalks along the parking with kerb ramps are positive signs. However wheel stops are required to avoid the cars encroaching on it. Also, reduced parking has resulted in cars parking on pedestrian plaza areas.
- Table top level crossings at/ or proposed between the inner circle, outer circle and between blocks is appreciated. Crossings do not have signals and road marking (Zebra lines/ STOP line); motorists do not yield and makes it extremely unsafe to cross
- Signage and traffic monitoring is required to reduce motorist speeds and boost pedestrian safety.
- No identification and way winding signage for the Blocks; while driving the block can be easily missed.
- Open spaces and sunken courts near the Metro stations table top crossings are unsafe for children, person with vision impairments and the unaware. Railings or low walls can prevent accidents
- Parking lots, public conveniences and resting benches have been provided. Signage for accessible parking, shade trees at rest areas, and some modifications in public conveniences are required.
- Unisex accessible toilets have no signage, ramp is steep and landing is missing; door is unsafe. Raised accessible public conveniences require ramp access with a level landing at the door; clear, graphic signage at discernible locations; even lighting; appropriate placement of fittings for wheelchair transfers, and easy reach; handrails for support and full height door for safety. The size of the accessible toilet is adequate.
- Ladies and Gents toilets face each other; have poor lighting and signage, a safety hazard.
- ECO drains provided in walkways/footpaths along tactile band have narrow gratings and do not hinder movement of mobility aid user's viz. wheelchair, walker, stick, white cane, etc. These are not provided in the travel route, hence provide ease in walking. These are easy to clean and maintain.
- Hawker zones are not planned, hence encroachment of corridors/circulation space is found. These can be zoned.

- Metro station access is problematic. Steps are uneven heights (tripping hazard), pavements are broken, not continuous, with no tactile warning bands. Handrails are open and not continuous, signage is poor and accessible entrance, i.e., lift locations is not clearly identified. Steps and ramp both are encroached by vehicles.

Key problems:

- Motorist behavior is a major concern that requires traffic monitoring, management and enforcement. Vandalism is another problem evident during construction, which needs to be dealt with.
- Other issues are lack of signage, audio signals, pelican crossings, non-continuity of tactile pavers and unsafe public amenities.

RECOMMENDATIONS

- 1) Approach- Illumination is inadequate
- 2) Blocks, Way finding and orientation signage to be provided at strategic locations
- 3) Crossings to have signals with audio announcement/ pelican signals/ road marking for awareness
- 4) Kerb ramps needs modifications and to have warning pavers
- 5) Accessible parking lot to be clearly demarcated and parking bays to be painted
- 6) Footpaths to be of 150mm height, with minimum width of 2m, and material to be anti-skid
- 7) Open spaces and sunken courts to be guarded for the safety of children, person with vision impairments and unwary
- 8) Tactile pavers are not continuous, not provided for public toilets and have to be in bright colour contrast
- 9) General toilets to have signage with pictograms and in contrast colours
- 10) Unisex accessible toilets to have ramp with landing and internal layout to be modified
- 11) Shade trees to be provided along rest and pedestrian areas. Avoid high shrubs planting for safety.
- 12) Hawkers zones should be clearly planned and provided
- 13) Dustbins- Non vandalized material and regularly cleaned

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