

# ENHANCING LAST MILE CONNECTIVITY

## a safety analysis of the I.N.A. Metro Station



This Report has been prepared as part of the Project being undertaken with NDMC to Enhance the Last Mile Connectivity along the metro stations within it's jurisdiction. The safety audits were conducted in collaboration with Jagori and the National Association of Blind.



# I.N.A.

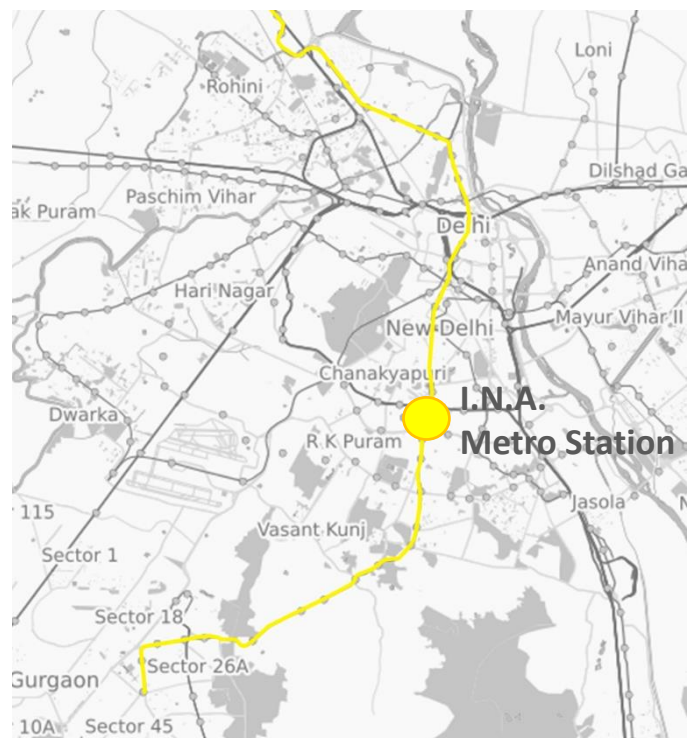
**SAFETY SCORE: 3.2/5**

SafetiPin, is a map-based mobile phone and online application, which works to make communities and cities safer by providing safety-related information collected by users and by trained auditors. At the core of the app is the Women's Safety Audit. A Women's Safety Audit (WSA) is a participatory tool for collecting and assessing information about perceptions of urban safety in public spaces. The audit is based on nine parameters – Lighting, Openness, Visibility, Crowd, Security, Walkpath, Availability of Public Transport, Gender Diversity and Feeling.

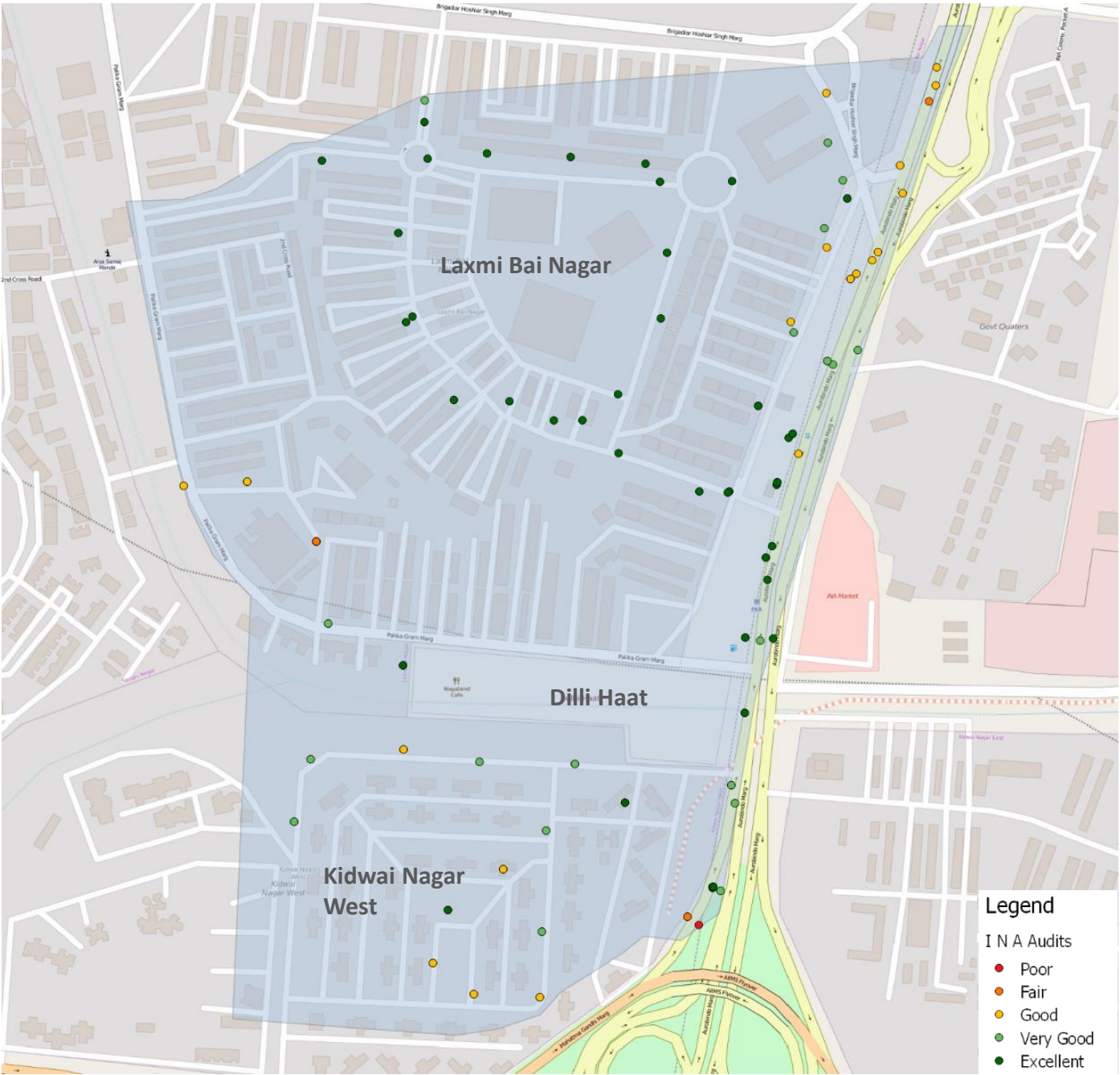
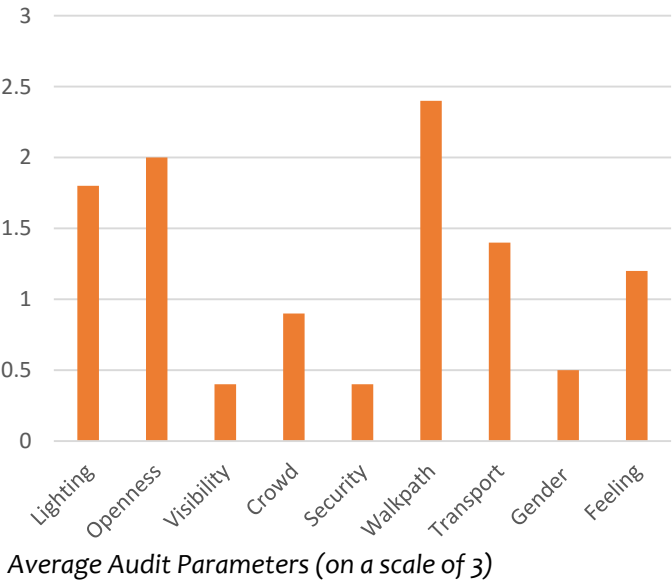
The audits were conducted along with Jagori and students from the National Association of Blind (N.A.B.). The assessment was done during the day with the students from N.A.B. and post sunset till 9pm.

I.N.A. metro station is located towards the north of the AIIMS flyover catering to Kidwai Nagar, Sarojini Nagar, INA Colony, Laxmi Bai Nagar and Aviation Colony. Dilli Haat and INA Market-two major city level destinations are accessed by this station. The station is being converted into an interchange station in the Phase-3 of the Delhi Metro.

An area of approximately 500m radius around the metro station has been studied and 102 audit pins have been generated. The area towards Kidwai Nagar East is currently being re-developed therefore, no safety assessment was possible in that area. The area outside the metro entry/exit and the Bus Stop on the East side were studied. The localities Kidwai Nagar West and Laxmi Bai Nagar were studied in detail.

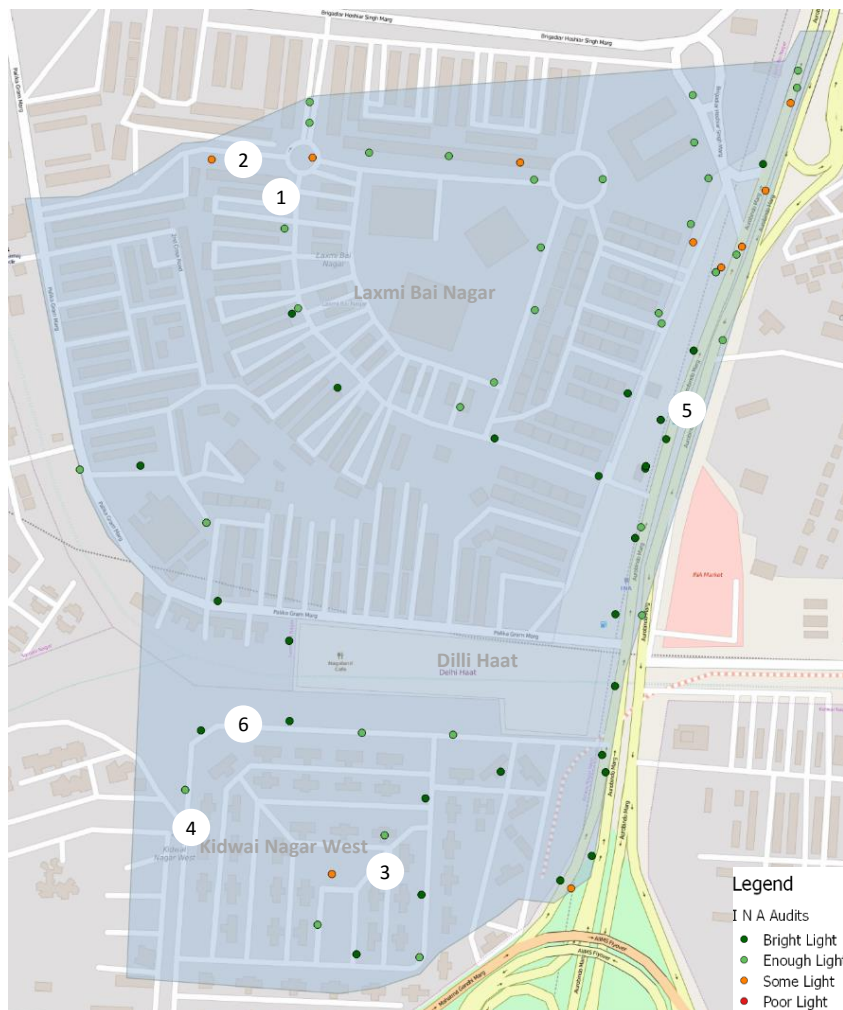


Safety Audits indicate that the area around the metro station is safe. The parameters of Lighting and Walkpath have been rated Average and Above Average respectively. The availability of Public Transport has been rated Average as in the residential areas it is difficult to access. The parameters of Visibility and Security have been rated poorly. As a result the presence of people and especially women on the streets is low. Overall, auditors have rated the Feeling in the area as Average.





# Lighting

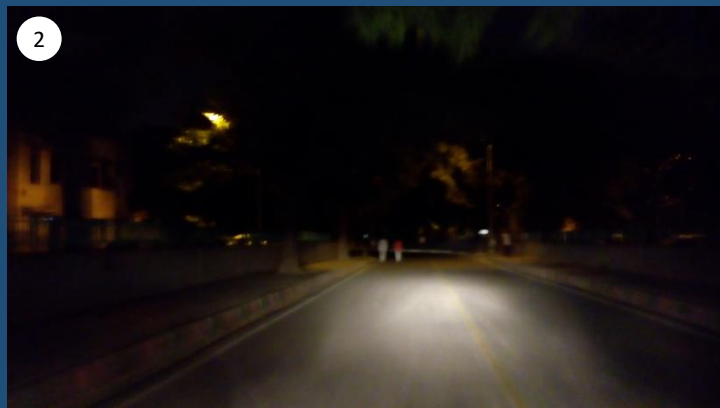
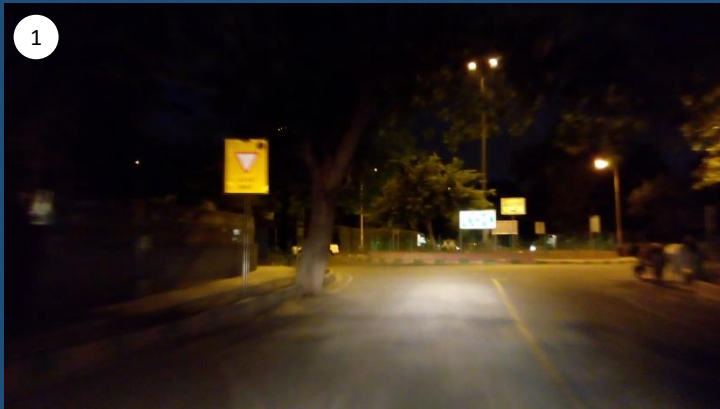


Lighting Parameter has been rated 2.3/3 i.e. Good. Along the main Aurobindo Marg lighting is enough for clear visibility. However, currently the streetlights have been provided focusing towards the road and not the footpath. Pedestrian scale streetlights along the footpath will ensure a brightly lit pedestrian path safe for women to walk on at night.

Laxmi Bai Nagar is a residential area and there are women who use the metro to commute. For them ensuring safe last mile connectivity from the metro station to their house at night is important. The area has streetlights provided along the roads. However, a few were found to be un-operational. Also, along the wider main roads within this locality, the streetlights have been provided only on one side of the road. As a result, the footpath on the other side of the road has poor illumination. The high mast light has been provided along roundabouts but as one moves away from them, the roads tend to offer low illumination.

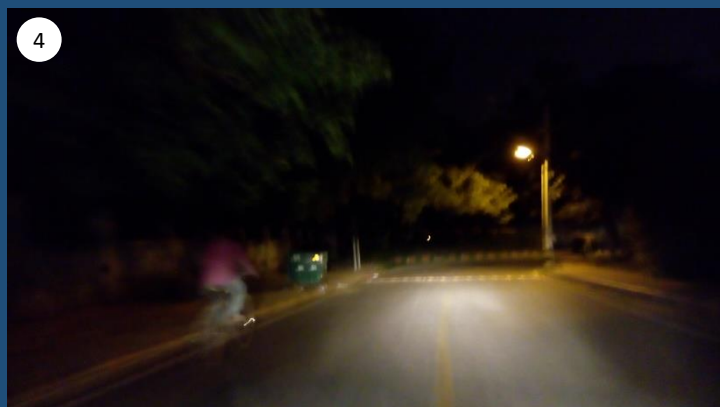
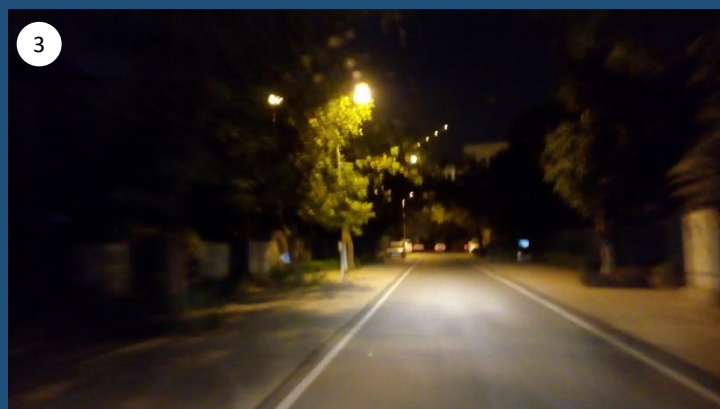
Kidwai Nagar West faces similar issues as Laxmi Bai Nagar. While this area has pedestrian scale lights they are hidden behind foliage resulting in low levels of lighting in the area.

Lighting Rating

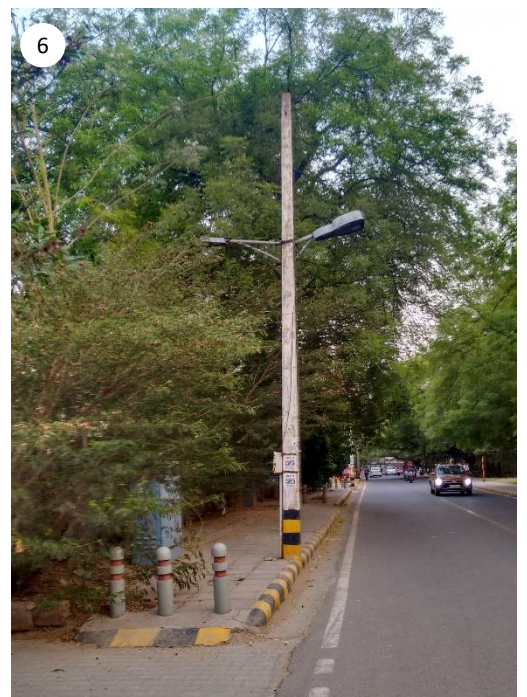


*Lighting in Laxmi Bai Nagar.*

*Dark spots are created between adjacent light poles. Installing additional light poles alternatively on the other side of the road will ensure uniform illumination throughout the road. The streetlights should be of pedestrian scale. Also, regular pruning of trees along the existing higher light poles is necessary.*



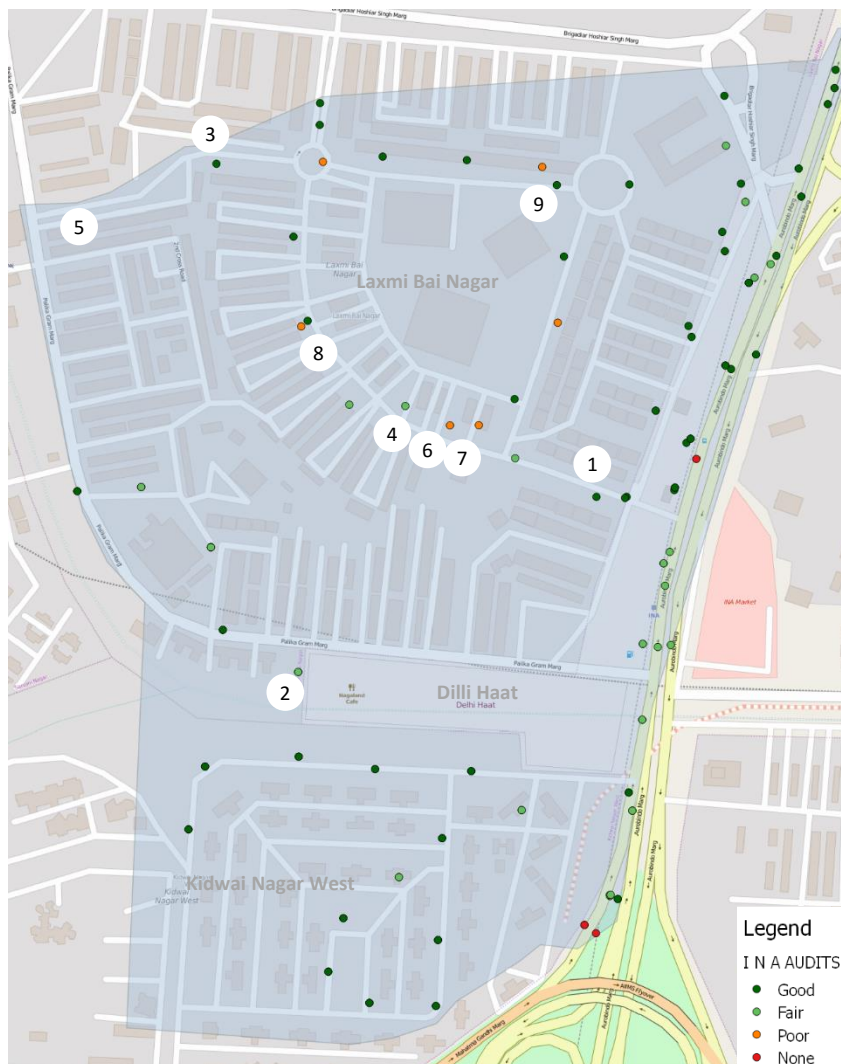
*Lighting in Kidwai Nagar West*



*Currently, the streetlights have been provided focusing on the vehicular carriage way of the road. The streetlights are higher for the same reason. Pedestrian scale streetlights need to be located along the footpath. These should be provided so as not to obstruct the pedestrian movement and clear off the tactile paving to be provided for the movement of visually impaired people. The foliage along the streetlights needs to be pruned regularly as the overgrown leaves shield the light fixture resulting in poor illumination along the pavement.*



# Walkpath



Walkpath Rating

Walkpath Parameter has been rated 2.5/3. While the walkpath exists in most parts of the area, it is in poor condition at some points. Also commonly observed are various types of obstructions along the footpath – parked vehicles, permanent structures like Police Booth, electrical units, concrete footings, signages etc.

The survey with the students from the National Association for Blind reveals that while the footpaths are in a fair condition for people with disability especially the visually impaired women, the footpaths are unsafe to walk on.

In both residential areas, vehicles being parked on the pavement is a persistent problem resulting in people being forced to walk along the vehicular carriageway making them susceptible to accidents. Separate parking areas or lane needs to be created such that the pavement is dedicatedly for pedestrian use. Along many parts the pavement is broken and is covered with construction material and debris. These need to be cleared and repaired. At certain locations the footpath is too narrow and the kerb height is too high. This too needs to be repaired.



Vehicles parked on the pavement in Laxmi Bai Nagar.



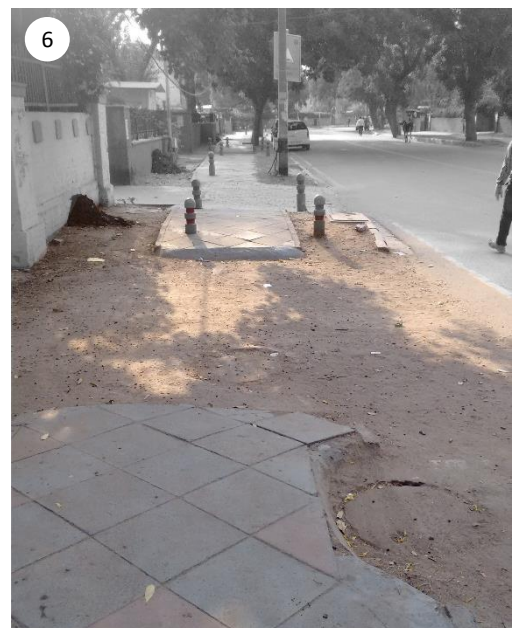
The rear entry of Dilli Haat has a Parking Area. The edge of Dilli Haat does not have a footpath and the one along the Parking is too narrow and too high. The vehicles should not be allowed to park on-street in this area. A proper footpath with tactile paving and ramps needs to be constructed. The boundary wall too should be demolished and be replaced by a Grill to ensure visual connectivity. The gate and piers serve no purpose and should be demolished as well.



The Public Facilities need to be provided clear off the pavement so as not to hinder movement. There are many government offices in the area and the same can be easily incorporated within their premises. Also seen is a lone bollard that doesn't serve any purpose but disrupts smooth pedestrian movement. Such elements too need to be removed from all locations.



Construction Debris and other obstructions observed on the pavements in the area.



The pavements need to be constructed with proper ramped edges. The entry to the various buildings needs to be properly paved such that the tactile paving from the pavement is uninterrupted. Also, seen here are bollards placed randomly.





The footpaths in this area are in fair condition in most parts. However, the detailing at the junctions and edges is improper which makes it difficult for pedestrians especially the disabled group. For the visually impaired group it is impossible to walk alone and always need assistance right from the metro entry/exit to the residential neighbourhood.

*Top Left: Seen here is a Police Booth built on the pavement. The space left between the booth's edge and the railing has a streetlight as well. The space left is too narrow as per Street Design guidelines. Also in the absence of tactile paving the visually impaired people find it difficult to maneuver. The height, design and the location of the Signage is not pedestrian friendly. The Police Booth needs to be shifted to clear the pavement. Tactile paving to be introduced free from obstruction from the Signages and Light poles.*



*Left Centre: The Safal Booth has been located clear of the pavement and do not hinder pedestrian movement. However, at their interface the pavement is broken and hasn't been constructed properly. Also the manhole covers protruding are a potential hazard. The pavement needs to be Continuous and Levelled throughout.*



*Below Left: Despite dedicated parking space for vehicles they are seen obstructing the pavement. A proper level difference needs to be created between the pavement and the parking surface. The pavement to be widened and only the parking bay required for vehicles should be provided. The excess space seen here for parking should instead be used for pedestrian movement. Also, the pedestrian space needs to be constant throughout such that if a tree exists then the pavement should be widened and the tactile paving should be continuous and free from such obstructions.*

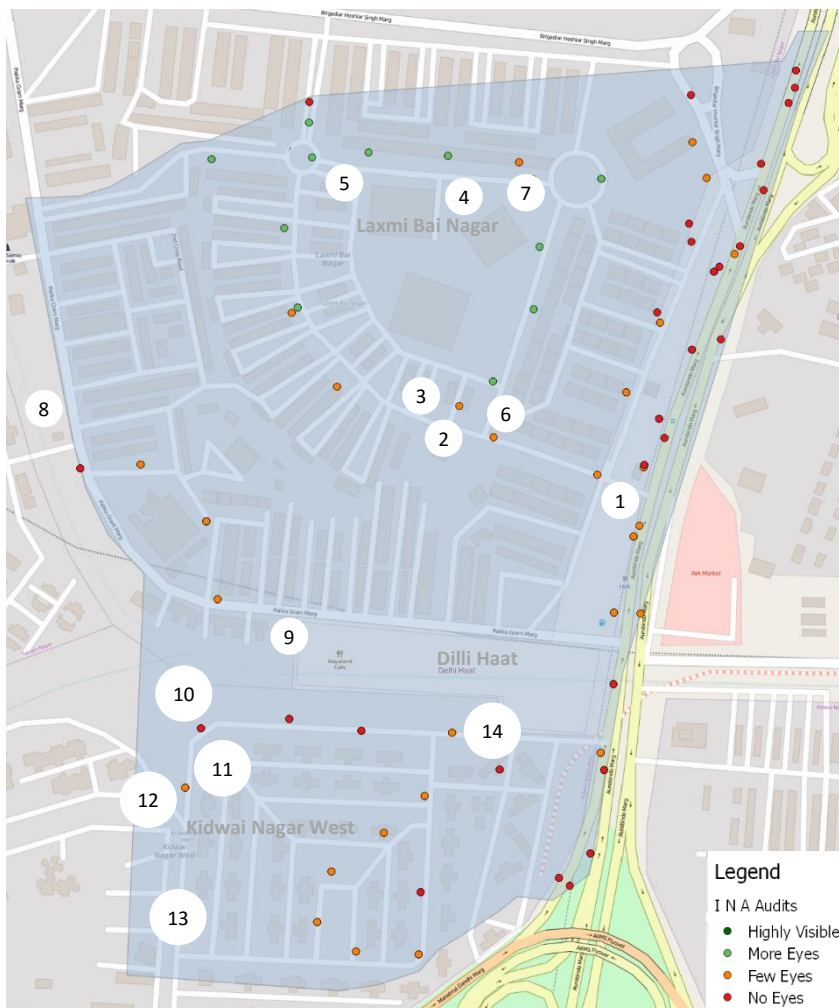


*Shown Below: Various obstructions along the pavement which make it difficult for people to walk comfortably. For the visually impaired however, these obstructions which may go unnoticed by others, are causes of potential accidents. The vehicles parked on the pavement force one to walk along the vehicular carriageway. All obstructions no matter how small like the protruding pipe, need to be removed and the pavement needs to be levelled with continuous tactile paving. Also, regular pruning of tree leaves is a must to ensure a clear height of at least 7' for the visually impaired. Also, the signages should be beyond this clear height.*



*The entry/exits of the metro station and the lift needs to be well connected with the bus stop and subway through continuous levelled tactile paving. This should be clear of all obstructions. Currently the paving has been provided only at the bus stop which however, ends abruptly and is intersected by the signage. Also some other unnecessary obstructions were observed which can cause serious injury to the people.*

# Visibility



Visibility Rating

Visibility Parameter has been rated 0.7/3 i.e. Below Average. The study area comprises of three sub-zones: the main arterial road Aurobindo Marg, and the residential areas of Laxmi Bai Nagar and Kidwai Nagar West.

Along Aurobindo Marg visibility has been rated the poorest. While there is some visibility outside the metro vomitories due to the presence of vendors, largely the stretch offers very poor or no eyes on the street. Hence, making it seem unsafe for women at night.

Laxmi Bai Nagar offers some eyes on the street on account of the residences and some street vendors. However, this needs to be further enhanced by removing the boundary walls. These should be replaced with grills such that a visual connection is maintained between the pedestrian and the residences. The area also has some government offices and schools. These are setback from the road and have blank boundary walls defining their edge. These need to be reduced and functions like ATM's can be incorporated within the premises to offer some security and eyes to the pedestrian on the street. Kidwai Nagar West too being residential area offers some visibility and faces the same issue.





Hawkers are present outside the metro station. However, they do not have a designated space and end up crowding the footpath. Either the pavement should be widened or proper zone be created for them along the metro station entry/exit itself.



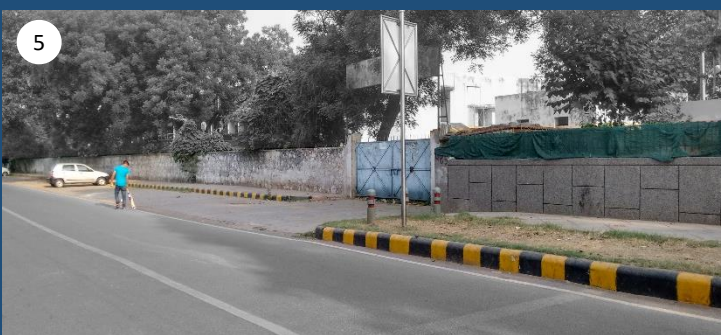
The hawkers catering to the domestic needs of the residents do not have any dedicated space. As a result they are forced to occupy the footpath. The lack of street furniture further forces people to squat and obstruct pedestrian movement.



In the same area however, Niches for hawkers have been created in the boundary walls of public spaces like Parks. The same should be done along the boundary walls of residences and also the various Public Buildings and Government Offices in this area. These buildings have a huge setback from the front boundary. As a result the visibility is very low and also these are vacant at night. Niches for vendors can be created in their boundary walls along with incorporating functions like ATM's, DMS Milk Booth and Police Booth which are currently obstructing the footpath. These Hawker Zones should also be provided with street furniture and Public Conveniences like Toilets. The Public Toilets must be provided for Gents, Ladies and a Handicap Toilet must be provided as well. (Currently, the Public Toilet outside Metro Station Exit No.3 only has a Gents Toilet).



The boundary wall design of these areas needs to be modified. The solid surface of the boundary wall needs to be reduced to atleast 1m and the remaining height be achieved using a grill. It needs to be ensured that the grill is kept open at all times and not covered even for residential complexes.







The local markets in the area are active at night and offer good visibility. However, proper street furniture and lighting is needed here. Also separate parking zone needs to be created to prevent vehicles obstructing the road. The rear sides of these complexes are often neglected and are used for Public Urination and other undesired activities. These too need to be well-lit and have functions which ensure regular footfall making the edge safe.



Parking bays have been created for the residents to park their vehicles. These are wider than the footpath and without a sufficient level difference. As a result the cars encroach upon the footpath. This parking bay needs to be regulated both in terms of its width as well as continuity. Breaks need to be created having grass cover provided with street furniture and hawker zones. This will make the edge active which is currently dead.



There is a squatter settlement towards the south of Laxmi Bai Nagar along the storm water drain. The visibility is good in this area. However, here too there is no designated space for vendors who end up occupying the walkpath. Proper zones need to be created in this area itself as re-locating them would reduce visibility in this area.



The rear entry of Dilli haat offers no visibility. The boundary wall is mostly opaque providing no connect with the internal activities. There is some visibility due to the ticket counter but largely the edge remains dead. This western edge of Dilli Haat has the stage for events. Opening up the read edge and making it transparent will improve visibility. It will also encourage people to use the adjacent Parking.



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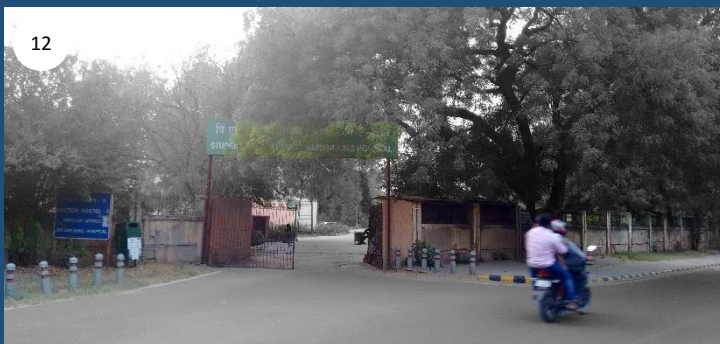
There is a tempo parking in Kidwai Nagar West. This area is completely dead except for the drivers loitering. This makes it unsafe for women. The area needs to be brightly lit. Also turning it into a Autorickshaw/taxi stand will ensure regular footfall making it active. Some space for vendors can also be earmarked. There should be a Public Toilet as well.

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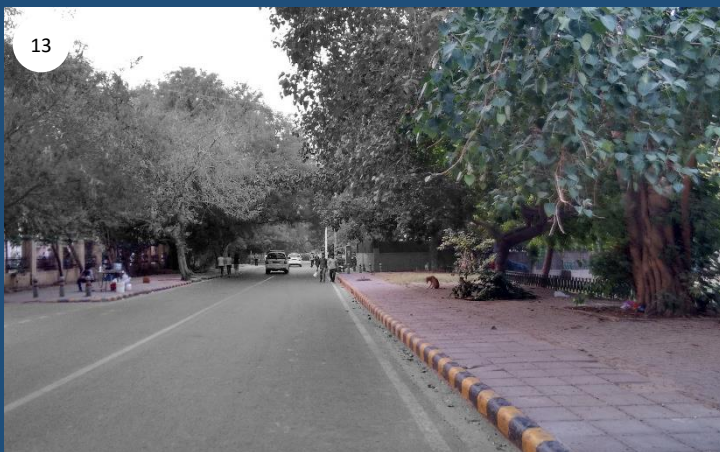
A huge space has been left for vehicular parking of the residents. This area sees a double layer of boundary walls, one for the residences and second for the vehicles. As a result the visibility here is very poor. The boundary wall along the parking needs to be removed completely and the design of the first to be changed as specified earlier. This area should be turned into a park for small kids and elderly.

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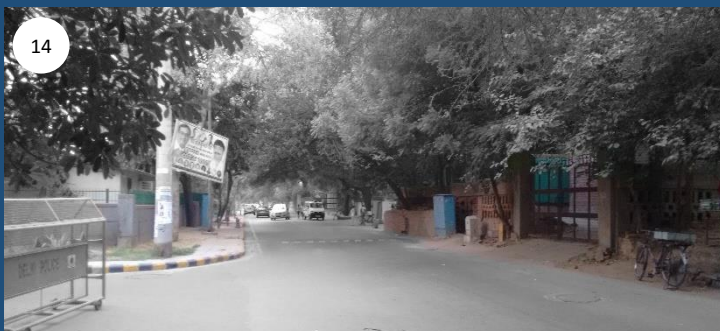


The Vardhman Mahavir Medical College & Hostel defines one edge on Kidwai Nagar West. Currently the edge is defined by a boundary wall. This can be replaced by either a small Park. Alternatively, shops (like bread & butter, stationary, photocopy) and cafes and food stalls catering to the needs of the students, faculty and the residents can be provided along the edge of the institute. Both sides of the road have a wide footpath sufficient to cater to the increase in pedestrian footfall. These activities will well connect with the small park on the residential side of the road. Adding street furniture would further ensure activity and presence of people and women.

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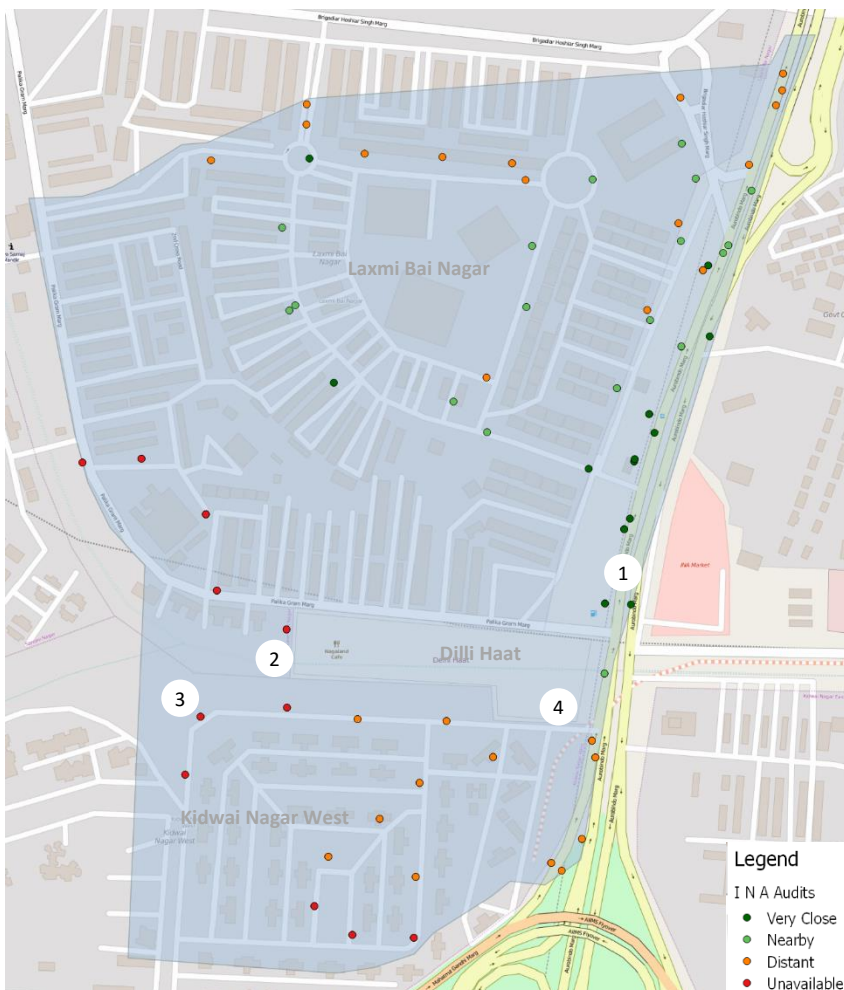
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The southern side edge of Dilli Haat houses all its services making it dead and inactive. The other side of this road is defined by boundary walls. However, there is a small undeveloped land at a raised level currently having vendors and public facilities. This should be developed into a proper local market catering to the residents.



# Public Transport



Rating of Public Transport

Public Transport Parameter has been rated 1.3/3 i.e. Average. Along Aurobindo Marg due to availability of the Metro and Bus service, there are autos and shared autos also easily available. However, as one moves away from the main road and into the residential area, there is no Bus connectivity as well. There are no designated auto stands in either of the two residential areas. However, there are few autos known to be standing outside the local markets from where one can hail them. But largely the residential areas do not have access to proper and regular public transportation facilities.

Designated Para-Transit hubs for autos/shared autos/taxis need to be created at regular distances catering to the entire residential neighbourhood. These should also be integrated with the local markets, vehicular parking zones and hawker zones. These should be well lit with waiting areas for passengers as well as proper facilities and toilets for the drivers such that they do not cause inconvenience to the residents.



*There is no designated stand for autos/e-rickshaws outside the metro vomitories. As a result they crowd onto the street. There is no space for metro users to wait for their cabs. Designated stands for para transit facilities needs to be incorporated within the metro area. This should be well integrated with the bus stop location as well.*

*Also a Bicycle Rental System should be introduced. The bicycle stands can be integrated with the Para-transit nodes being created throughout the area. This will not only give more flexibility to the commuters but also encourage more people to use metro.*



*There huge parking area towards the rear entry of Dilli Haat should be developed as a Para-transit hub. It is flanked by residences and the Ullas park. This area can be used to stitch together the various areas. Once the area becomes active the commute would not only be safer but shorter as well.*



*The tempo parking area in Kidwai Nagar West should have a para-transit hub integrated into it. This should be well lit with proper Public Conveniences.*



*The southern edge along the main entry of Dilli Haat has a small vehicular parking zone. This side also has provision for access for people on wheelchair. This parking area should have a para-transit stand incorporated. The space for parking of private vehicles and public transport should be segregated and both should be segregated from the pedestrian movement. Proper tactile paving should also be provided in this area.*

