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Analysis of Existing Pedestrian Facilities at Selected Areas of Jaipur City

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Abstract - *Existing conditions of footpath conditions in selected locations of Jaipur city is studies in this research. The areas of study were selected on the basis of their location, population of the area, connectivity and availability of industries and companies for jobs. We have worked on selected stretches of Tonk Road, Sodala, and Kumbha Marg located in Jaipur, Rajasthan.*

The selected areas were examined and the existing footpath conditions in the areas were studied. The dimensions, conditions of the existing footpath facilities were examined and compared with the IRC guidelines. After comparison suitable measures are suggested to improve the existing pedestrian facilities. Footpaths widths, clear heights and kerb heights are measured at all of the sites and compared by the standard data from IRC: 103 – 2012 (Guidelines for Pedestrian Facilities).

On the basis of above study, it is suggested that obstructions, hawkers, discontinuity of footpaths, width and elevation, parked vehicles are the major problems which are faced by the pedestrians. Further recommendations are also given to improve the pedestrian facilities in the areas of study.

Key Words: Footpath, Pedestrian Facilities, Hawkers, Illegal Capturing

1. INTRODUCTION

Growth is always an essential aspect of any city and Jaipur is undoubtedly a city of growth. This Northern Indian city is one of the most consistently growing cities in the country. Each year, the population of Jaipur increases by approx 3%, and the current estimated population remain strong at 3,653,927. People are drawn to many aspects of the city, including its rich architectural history and many tourist attractions.

With rapid increase in population, the numbers of pedestrians in Jaipur City were also increasing which in turn results in more enhanced pedestrian facilities. For safe and free movement of pedestrians on roads proper pedestrian facilities must be provided. For pedestrian facilities footpath and zebra crossing are taken into consideration. Due to rapid increase in population, motor traffic on roads is also increasing which is resulting in deterioration of pedestrian facilities. Indian roads are turning deadlier for pedestrians. Government data show the number of fatalities shooting up from 12,330 in 2014 to 20,457 in 2017, a jump of nearly 66%. It means nearly 56 pedestrians died everyday in the year 2017. Authorities are still not taking pedestrian facilities seriously.

Indian Road Congress (IRC) has specified a code IRC 103: 2012 (Guidelines for Pedestrian Facilities) for development of pedestrian facilities in a state.

Chen Yixin [1], stated that the signal intersections in urban areas are particularly problematic because of not only high travel demands but also a high amount of pedestrians disregarding traffic signals. Kumar Munish et al. [2], observed that walking is not usually considered as a transportation mode, this is because it does not employ vehicles. He discussed that male pedestrians are more willing to violate the regulations and make unsafe crossing decisions. He observed that largest group of victims in pedestrians are children under 15 year of age group. He also discussed about the effects of drugs and alcohol to the pedestrians which may be cause of accidents. Bhardwaj Parajita [4], discussed about the rights of the pedestrians with respect to the roads. She also evaluated about the road accidents that, 53% of the people who died in the road accidents are pedestrians. And 90% of pedestrians feels unsafe to travel on the roads. So objective of this paper is to determine the rights of the pedestrians with respect to the roads. Anon [5], studied on traffic and transportation policies and strategies in urban areas in India, Anon classified cities according to their population with respect to their Percentage Walking. He does this experiment with the key cities of India, he evaluated that the average percentage walking of all cities of India is 28%.

The objectives of the present study are listed below:

1. To check the pedestrian facilities available in selected areas of Jaipur City.
2. To find the problems in available pedestrian facilities of the selected areas.

3. To recommend the changes in pedestrian facilities in that areas as per IRC norms.

2. METHODOLOGY AND STUDY AREA SELECTION

2.1 METHODOLOGY

As the population of Jaipur City is increasing at a very high rate, in the present study, we are studying about the existing footpath conditions in Jaipur. The study areas were selected on the basis of their location, population of the area and availability of industries and companies for jobs. First of all we examined the existing conditions of foothpath on the sites. The data was collected by clicking photos of footpath area which has been used to prepare a detailed footpath investigation by extracting details of existing obstructions for each meter length. Then we have done the analysis of the exerted data by using IRC:103-2012.It is very important to plan, design and implement non-motorized transport facilities accurately and effectively. For more accurate decisions regarding walking facilities, evaluation process needs to include all the details of obstructions that exist on footpath. In Jaipur different types of obstructions have been observed on footpaths. Many of them are easier to remove compared to others which needs long term planning. Then after we will compare all of the data from "Guidelines for pedestrian facilities", after this we will write the conclusion of the report.

2.2 STUDY AREA SELECTION

The areas of study were selected on the basis of their location, population of the area and availability of industries and companies for jobs. The areas of study were:

a) Tonk Road (Infront of Moti Sons Jewellers)
This road is highly crowded because it lies in the heart of the city. This road connects the Narayan Singh Circle bus stand to the Commercial, Industrial and Education zones of Jaipur City. The Phase II of Jaipur Metro will pass through Tonk Road connecting Sitapura and Ambabari.

b) Sodala Tiraha and Hawa Sadak
This area of Jaipur City is also very densely populated because it connects few major residential and commertial areas of Jaipur City like Vaishali Nagar, Civil Lines, Bais Godam and C-Scheme. Due to this heavy load, present phase of Jaipur Metro and elevated road also passes through Sodala.

c) Pratap Nagar (Kumbha Marg)
This is new area of Jaipur City but it has turned into very high populated areas due to the presence of industries, Educational Institutes in the nearby Sitapura Industrial Area. This area faces a very high traffic at morning and evening hours. Because of this the Phase II of Jaipur Metro is also planned through this area.

3. DATA COLLECTION AND DATA ANALYSIS

3.1 DATA COLLECTION

The selected areas were examined and the existing footpath conditions in the areas were studied. The photographs and dimensions of the existing footpath facilities were taken and compared with the IRC guidelines. After comparison suitable measures will be suggested to improve the existing pedestrian facilities.

3.2 DATA ANALYSIS

a) Tonk Road (Infront of Moti Sons Jewellers)

The condition of footpath on the selected stretch of Tonk Road was very bad. The drainage systems were opened; there were illegal capturing of footpath by the shopkeepers and at few locations, vehicles were parked on footpath. The height of the footpath was also not consistent. The observed kerb height at the selected stretch was found to be variable i.e. 155, 160, 152, 171, 159mm at different locations. The kerb height must be a standard of 150mm. The width of footpath was also variable. The width of footpath at different locations ware found as 2.1, 1.82, 2.5, 2.64 and 2.3m. As Tonk Road comes under commercial zone, therefore as per the IRC norms, the width of footpath must be 2.5m. Clear height was found to be 2.2m at all locations. Installation of electric boxes on footpath is also one of the major problems here.

Fig – 1 Broken Drainage System

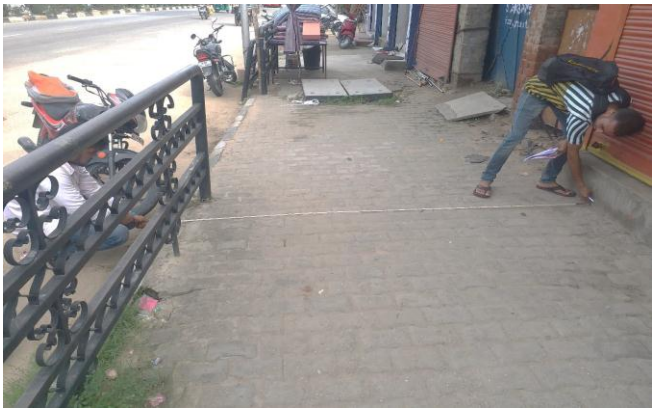

Fig – 2 Measurement of Footpath Width on Tonk Road

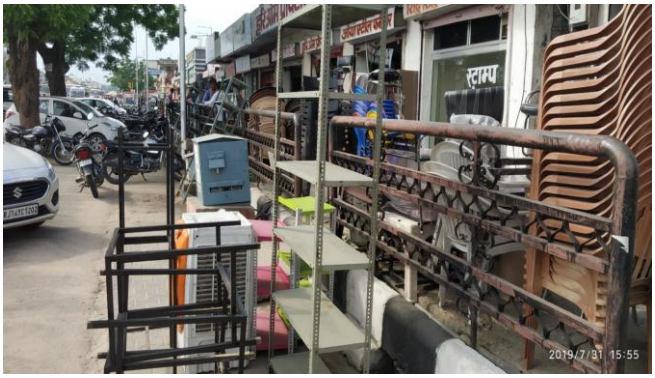

Fig – 3 Illegal Capturing of Footpath

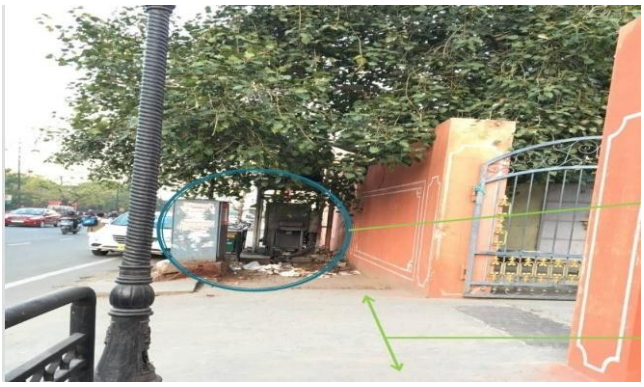

Fig – 4 Electric Boxed, Trees and Ramps on Footpath

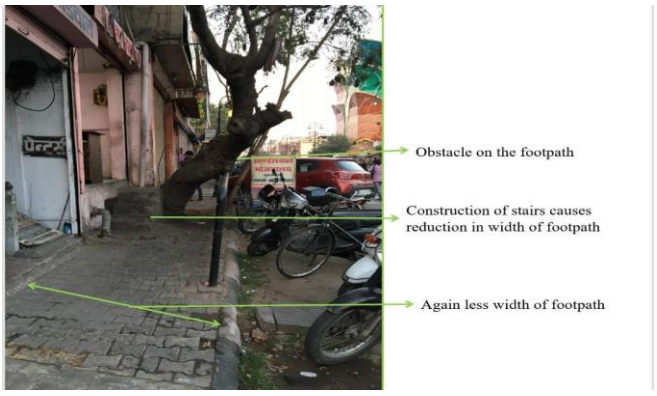

Fig – 5 Obstructions of Footpath

b) Sodala Tiraha and Hawa Sadak

Even worse condition was seen at Sodala Tiraha. The major problems seen there were insufficient footpath width, Illegal capturing by hawkers and shopkeepers, discontinuity of footpath. As the area is very congested and high traffic as well as pedestrian movement is there, many issues related to pedestrian facilities are there. At the main intersection, there is no provision for pedestrians to cross the road. At this place, due to unavailability of parking facilities all vehicles are parked on footpath leading to deterioration of pedestrian facilities.

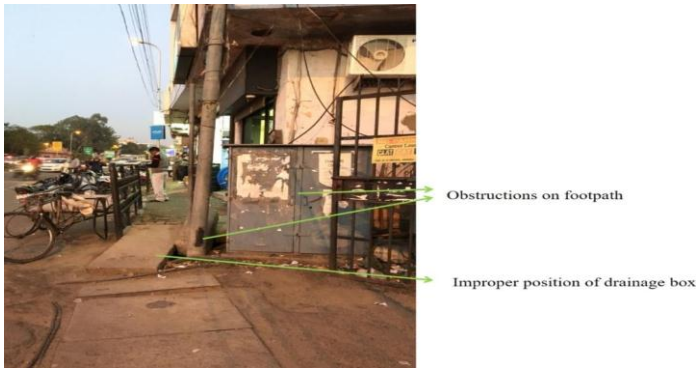

Fig – 6 Obstructions on Footpath

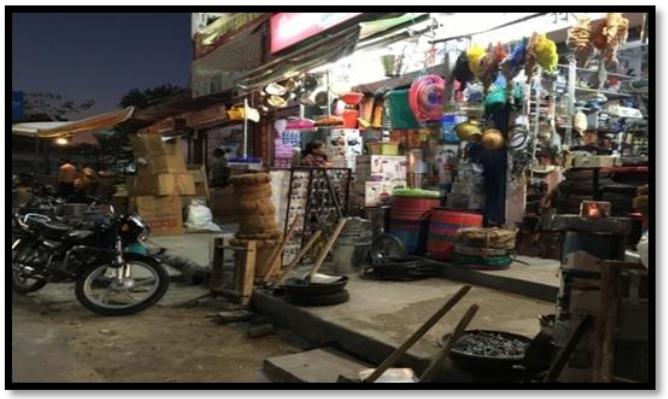

Fig – 7 Illegal Capturing by Shopkeepers

c) Kumbha Marg (Pratap Nagar)

Kumbha marg is the emerging area of Jaipur City but it is very highly populated because it is surrounded by the industrial, educational hub and commercial zones. Same scenario was observed here as well. The footpath occupied by hawkers, improper width and height of footpath, garbage on footpath, parking of vehicles and illegal capturing by shopkeepers are few issues faced by the pedestrians. The footpaths were not made as per the norms of the IRC. Although there is sufficient width of road available here, still the pedestrian facilities were not proper.

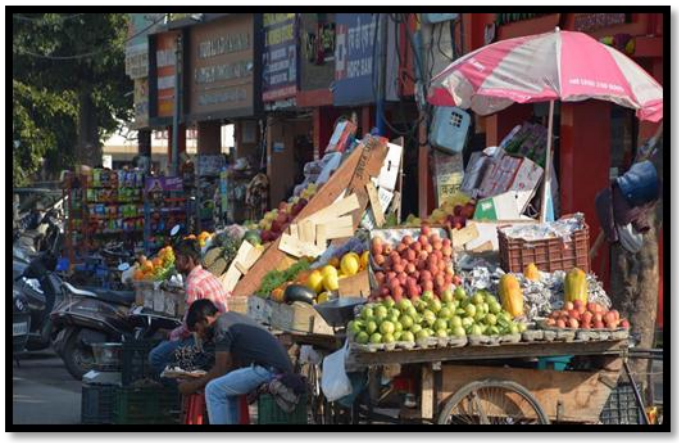

Fig – 8 Illegal Capturing by Hawkers

Fig – 9 Insufficient Width of Footpath

4. CONCLUSIONS

Conditions of the footpaths in selected areas of Jaipur are shown in this report. By using **IRC:103-2012** (Guidelines for Pedestrian facilities), we can improve and further develop the footpath conditions.
Through this report, I would recommend certain points to improve the condition of footpath in Jaipur City:

1. A routine maintenance programme is needed to ensure that footpaths are kept clean and level, free from defects and to prevent vegetation from causing an obstruction.
2. Signals should be used to warn drivers of pedestrians if the road shoulder is commonly used as an informal footpath.
3. Street traders (Hawkers), public utility, apparatus and street furniture should not be allowed to obstruct the footpath
4. Parking of vehicles on footpath must be strictly prohibited.
5. Variable height and width of footpath were seen at all locations.
6. It is recommended that consideration be given to improving accessibility for the mobility impaired. This should include design features such as paved footpaths with sufficient width to accommodate wheelchairs, dropped kerbs at pedestrian crossing points.
7. The footpath must be designed as per the norms of IRC 103-2012 (Guidelines of pedestrian facilities). The width of footpath must be as per the area demand i.e. in Residential/mixed land use 1.8m, Commercial Areas 2.5m, Shopping Areas 3.5 to 4.5m, Bus stops 3m, and High intensity commercial areas 4m.
8. The safety of the pedestrians must be on top priority.

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