

Effectiveness of Pedestrian Bridges in Islamabad/Rawalpindi

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Abstract

Pedestrian safety is a serious issue in Pakistan and needs urgent attention. Yearly over 7000 road accidents occur in Pakistan, as a result, a large number of people are being killed and several thousands are injured/crippled. A pedestrian safety survey was carried out to evaluate the effectiveness of eight pedestrian bridges located in urban areas of Rawalpindi/Islamabad. Traffic around these bridges in terms of physical and operational parameters, location of bridges, road furniture and level of enforcement were observed and analyzed.

A number of observations have been made in terms of poor infrastructure provided for safe pedestrian crossing. It is recommended to provide proper road signs, road marking, provision of rumble bars and proper fence around these areas to ensure that the pedestrians use the provided facility.

Keywords : Safety, Accident, Traffic, Pedestrian crossing.

Introduction

The economic cost of road crashes and injuries is estimated to be over 100 billion rupees for Pakistan. However, the loss is more than just numbers, as road traffic injuries push many families more deeply into poverty by the loss of their breadwinners and inflict a tremendous continuous burden on the disabled victims and their families; and on national health care system (Ahmed, 2007).

An estimate of the total national cost of road accidents will help governments to realize the heavy economic losses being incurred annually as described in the "gross output" method of accident costing and socio-economic aspects of road accidents in developing countries. Governments must try to reduce these losses by providing road safety improvements and should see expenditure on road safety as an investment and not as a cost. Road Crash Problem (2013).

Road safety studies have revealed that human elements contribute to 95% of all accidents, road factors to 28% and vehicle factors of 8.5%. The road user is the sole contributor in 65% of accidents; in contrast, road and vehicle factors are usually lined with a road user factor. The 'Zebra' Pedestrian Crossings Regulations (1971) and Country road safety officer association (1986).

1. Perpetual errors e.g. driver or pedestrian looks but fails to see, distraction or lack of attention, misjudgment of speed or distance.
2. Lack of skill e.g. inexperience, lack of judgment, wrong action or decision.
3. Impairment e.g. fatigue illness, emotional stress, drugs and alcohol.
Manner or execution e.g. deficiency in actions (fast, improper overtaking, failure to look, following too closely, taking wrong path), deficiency in behavior (irresponsible or reckless, frustrated, aggressive).

Observations at Different Pedestrian Foot Bridges

a) Near Shifa Hospital on Jhelum/G.T. Road.

1. Pedestrians cross the dual carriageway in haphazard manner. Most of them are school children and elderly who are more vulnerable to fatal accidents.
2. There is no facility of zebra crossing. Pedestrians are noticed standing on the narrow median.
3. No warning signs on the approach road of the hospital.

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4. Commercial vehicles and private cars do not observe speed limits.
5. There is no facility of bus stop on north-side of the carriageway for embarking/disembarking the passengers.
6. Public Service Vehicles (PSV) are being carelessly parked in double / triple parking pattern on northbound and underneath the bridge creating obstruction to through traffic.
7. Street traders have encroached on the main road.
8. There is no road marking near the bridge.
9. Due to the lengthy ramp of the bridge, it becomes tiring and very inconvenient for the pedestrian to cross the bridge. Moreover due to absence of fence, people cross the road through the median.

b) Near Mall Plaza Chowk on Mall Road

1. There is an army mess and telephone exchange on the north-bound, Askari Plaza on south bound. The pedestrian bridge is seldom used by the pedestrian in spite of the fact that the bridge is located in the critical area having maximum pedestrian and vehicular movement.
2. Manhole and open drains have also been observed on one side of the footpath thus creating safety hazards.
3. Location of the bridge is inappropriate.
4. Open fences have been observed at two locations beneath the bridge thus encouraging the pedestrian to walk through the barrier. Pedestrian flow behavior is quite erratic. Reasons for not using the bridge are also attributed to sharp risers and substantial difference in elevation of the bridge.
5. Level of enforcement is poor in the vicinity of the bridge especially at the intersection where maximum pedestrian and vehicle movement occurs.
6. Zebra crossing strips are not conspicuous and have faded away.
7. PSV and motorcar drivers generally drive at a high speed even on turnings. The road users also make parallel lanes while turning.
8. Pedestrians cross the road much beyond the zebra crossing at their own convenience.

c) Near Old Saint Mary's School on Murree Road

1. There are two schools on the west and one on the east side of Murree road.
2. About 3000 school children use the pedestrian bridge during morning and evening. In contrast the use of bridge by general public is minimal.
3. No safety fence on either side of the road.
4. It has been observed that most of the pedestrians and students climb over the fence and become exposed to high-speed traffic on the main road.
5. Absence of car parking facility results in illegal double-parking. Due to the absence of school parking facility traffic congestion occurs when the school children, are picked and dropped.
6. Pedestrian footbridge is being poorly maintained.

**d) Near Faizabad Interchange on Murree Road
Observations on West Side**

1. Pedestrian footbridge is not maintained, but is being used by the pedestrians.
2. Fence beneath the bridge had been removed at two locations.
3. In spite of the bus bay facility, PSV and wagons are being parked underneath the pedestrian footbridge.
4. Pedestrians normally climb over the barrier to cross the road. School children climb the fence and cross the road rather than using the bridge and become fully exposed to the traffic.
5. Triple parking of large PSVs, and wagon in irregular way towards west side of road has been

Observed which not only block the road causing traffic congestion but also creates serious threat to the road users.

6. PCO billboard have been built at two locations, Newspaper stand, which is illegally placed on the footpath, obstructs the pedestrians flow and distracts the attention of road user.
7. Fruit sellers have encroached underneath the bridge that has reduced the effective width of the footpath. Due to encroachments, the pedestrian flow is also obstructed and pedestrians are forced to use the road and become exposed to accident. Billboards placed on the footpath also reduce the effective width of the footpath.
8. Taxis are being illegally parked on the ramp along the footpath which ultimately reduce the effective road width
9. Due to the presence of grocery stalls, the traffic approaching towards the ramp and entering the interchange is being obstructed and the effective width of the ramp is reduced.
10. Advertisements pasted on the bridge distract attention of road users.
11. Obstacles such as charity boxes and large boulders have been placed on the curb edge.

Observations on East Side

1. There is no facility of footpaths and parking for coaches.
2. Bus stop is utilized occasionally.
3. Coaches embark / disembark the passengers beyond the bus stop.

e) Near Faizabad Interchange on Islamabad Expressway

1. Bridge is not being used by the pedestrians.
2. Fences have been removed from the barrier and pedestrians cross the bridge in jaywalking manner.
3. PSVs drivers stop the vehicles prior to the bus stop.
4. Double, triple halt of cars have been observed on the main road, which reduces the effective width of the road and creates potential accident hazards besides obstructing the flow of traffic.
5. Temporary U-turn close to the bridge has caused great potential hazards for pedestrians and bicyclists.
6. PSVs are overloaded and over clustered with passengers who sit on the rooftop of the vehicles.
7. Government transports do not bother to wait for passengers.
8. Enforcement is ineffective and traffic signs are non-existent.
9. Passengers are observed standing on the road for being embarked / disembarked in the absence of adequate bus stop facility and are fully exposed to potential road accidents.

f) Near Kurri Road on Islamabad Express Way

1. Animal drawn carts have been observed moving along the edge of the pavement.
2. Pedestrian footbridge is not being cleaned and maintained properly.
3. Pedestrian bridge has a sharp gradient thus creating difficulty for senior citizens.
4. Bus stop is not being used.
5. PSVs erratically stop the vehicles in the middle of the road resulting in double parking that reduces effective width of the pavement.
6. Passengers wait on the edge of the road pavement and become more vulnerable to potential road accidents.

g) Near Zia Masjid on Islamabad Express Way

1. Pedestrians use this bridge.
2. Fences have been removed-from the barrier.
3. No bus stop facility.
4. Pedestrians stand on the edge of pavement and become vulnerable to potential road accidents.
5. PSVs and car drivers usually drive at high speed.
6. PSV drivers generally stop in the middle of the road.
7. The approach road is not adequately paved and is encroached upon, by the fruit sellers. Further, there is no parking facility for the taxis and private cars on the approach road.
8. Shoulders are poorly constructed on one side of the highway.

Identified Discrepancies

Physical Parameters

a) Structural Conformity

Almost all the bridges have steep risers, and sharp gradient which create immense problems for pedestrians, children, old and disabled people.

b) Effectiveness of the Bridges.

1. **Near Shifa Eye Hospital On Jhelum / G. T road.** The ramp of the bridge is too long, it is tiring and hectic for pedestrians / patients to use the bridge.
2. **Near Mall plaza Chowk on Mall Road.**The location of bridge is inappropriate and this facility is not being utilized.
3. **Near old Saint Mary's School on Murree Road.**Only school students use the bridge during opening and closing hours of the school and other pedestrians rarely utilize this facility.
4. **Near Rawalpindi General Hospital on Murree.** About 1500 to 2000 patients visit the hospital every day. The visitors / patients have to cross the bridge ten to fifteen times a day to purchase the medicines from the chemists shops across the hospital, they get irritated and normally cross through road.

c) Encroachment

Street hawkers and street sellers have encroached upon the footpaths. Effective width of the footpath is substantially reduced.

d) Fence opening beneath the bridge

Pedestrians and school children enter through fence openings. They also climb over the fence barrier to cross the road and become most vulnerable to potential road hazard.

e) Road Furniture

The footpaths are poorly designed, extensively broken and uneven along various sections of Murree Road. Electric poles are located in the middle of the footpath, which not only obstructs pedestrian traffic, but also reduces effective width of the footpath.

f) Physical Obstructions

Bill boards stalls of street sellers, inappropriate located electric poles, construction materials and road furniture obstructs pedestrians and vehicular traffic flow.

g) Traffic Channelization

No channelization and lane restriction to separate the pedestrians/Cyclists from motor traffic on Mall

Road and Murree road.

h) Road Signs and Markings

Road signs, marking and advance warning signals near Faizabad and old Saint Marry's school and Shifa eye hospital located on Jehlum road are nonexistent. Parking arrangement for public transport, private vehicles and taxis is inadequate along the various segments of Jehlum road, Muree road and Islamabad expressway. Public service vehicles and wagons rarely use bus stops. Bus stops are located very close to entrance gate of hospitals where maximum vehicular movement occurs.

i) Illuminations Arrangements

The lamp poles on all the bridges are insufficient and lamp lights are not operational during night. Further, absence of roof covers on all the bridges expose the pedestrians to rain and sunlight. These bridges are also Poorly maintained.

j) Environment

Vehicular smoke emission and loud horn aggravates the environment for the pedestrians.

k) Level of Enforcement

Driver's behavior at traffic signals, pedestrian crossing and priority intersections is generally very poor and they do not follow regulations and disrespect traffic law. Furthermore, traffic constables are inefficient and are often found absent during peak hours.

Conclusions

1. An average of 36.5(%) use pedestrian bridges and almost 63.5 % cross the road through openings in the fences under the bridges or close to the bridges.
2. Most of the pedestrian's bridges have sharp gradients and steep risers. The pedestrians are reluctant to use the facility.
3. The locations of bridges are inadequate due to which pedestrians do not use foot bridges.
4. Absence of restriction for various vehicular traffic and loading and unloading of goods creates incompatible mix that further contributes to traffic congestion.
5. Advance warning signs and signals are required to be placed at appropriate locations.
6. Speed reduction devices should be introduced on Islamabad Expressway where maximum pedestrian's activities occur.
7. Shortage of public transport results in over crowdedness of passengers who cling to the rooftops of public service vehicles.
8. Level of traffic rules enforcement and road user behavior is very poor.

Recommendations

1. In view of the ineffectiveness of the bridges in terms of the utilization and safety of pedestrian, it is recommended to provide raised Zebra crossings or pelican crossings for easy and safe movement of pedestrians.
2. Modified fences should also be provided to force the pedestrians to use the bridge.
3. Extra lane for taxis may be provided near Faizabad interchange.
4. Vehicle speeds may be reduced on Islamabad expressway and Jhelum road by providing rumble bars.
5. Guardrails should be constructed along the Islamabad expressway.
6. Safety fences should be fixed along the right of way of Islamabad expressway to stop trespassing of wild animals, which usually causes road accidents.
7. Road safety education campaign should be vigorously launched from grass root level.

8. Appropriate level of enforcement should be implemented and strict punitive measure should be undertaken against those who violate the traffic rules.
9. Pedestrians should also be penalized if they violate traffic rules.
10. Barriers should be extended in both the directions.
11. Further to this, a detail study should be carried out to evaluate the optimum utilization of the bridges prior to their installation.

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