Economic Feasibility study for skywalk proposed as in urban area

Mr.Jagdish N. Desai1[1], Asst . Prof. S.V. Pataskar [2]

[1] *PG Student, Construction and Management, D.Y. Patil College of Engineering, Akurdi, Pune, India*
[2] *Asst. Prof., Civil Engineering, D.Y. Patil College of Engineering, Akurdi, Pune, India*

ABSTRACT

Walking is still a major mode of transportation in cities of India. The pedestrian traffic has large share in metros as well as in mid-size cities of India Despite of fast growing number of vehicle. However there is negligence toward study of pedestrian behavior, flow characteristics, capacity of pedestrian facilities. Due to in adequate facilities provided for the pedestrian movement, there exists a constant conflict between pedestrian and motor vehicles in sharing the limited space of the road,
I have selected chinchwad station intersection are such an intersection which are facing these problem such as high pedestrian traffic, heavy conflict of pedestrian-vehicular traffic major trip generator and attractor areas, the traffic flow is continuous, the pedestrian flow is of mixed type
Provision of grade separator and sky walk facilities will ensure the moment of pedestrian safe comfortable and also reduce the travel time a study was conducted in chinchwad station area. The study result are presented in this paper in present work study of pedestrian planning is taken up, to improve the pedestrian facility at these intersection.

Keyword : - *pedestrians, skywalk, pedestrians volume survey,.etc.….*

1. INTRODUCTION

Walking is one of the most sustainable traffic mode in urban transportation system. Particularly in countries like India. Because of the flexibility and mobility involved in it .Pedestrian are facing problem during crossing at signalized intersection cross walk under the mix traffic condition

Analysis of field data yield some notable observation as follows pedestrian adjust their crossing speed based on the traffic condition at the particular time. Pedestrian non uniform arrival pattern was observed and some of pedestrian crossing cross walk during flash red signal phase and red phase. Considering the above mention pedestrian crossing factor study conducted on crossing time delay and waiting time delay base on signal red time for pedestrian in waiting area. India is second most populated country in the word with its population of one billion plus. Many people in India do not have access to transport. At all they just simply walk for their daily transport need.

Most of Indian cities have high pedestrian death in road accident in Pune poorly maintained and unplanned pedestrian infrastructure has become a major road safety issue and as per the latest statistics which record 57-80 people who die on pcmc are pedestrian.

2. RESEARCH OBJECTIVE:

- To study the pedestrian characteristics on congested road network in a Chinchwad station area.
- To study if there is need of sky walk at Chinchwad station
- To study the traffic characteristics of main stretch of Chinchwad station to Mahaveer circle.

- To study about existing pedestrian flow characteristic's.
- To study the plan sky walk feasibility in Chinchwad station area to ensure safe and secure movement for pedestrian.

3 .SCOPE OF STUDY:

The study has been carried out because it was felt that in recent years due to increasing population, development and awareness the number of road trips increased and subsequently the number of pedestrian visiting the study area has also been increased as the study area is major junction, study area faces induced traffic which creates difficulty in pedestrian movement across well as along the road,

The large-scale movement of pedestrian traffic and their associated risk for the movement on the urban rod network due to incessant movement of high speed vehicular traffic, there is need to develop exclusive pedestrian to be free from vehicular traffic.

4. STUDY AREA:

The ever-growing population of pune is putting lots of pressure on the existing infrastructure especially on the transportation segment. PCMC suburbs such as chinchwad, nigadi,pimpri, akurdi are marked with congestion problem mainly near the station area. The station area is marked with chaos which the existing entry/exist points cannot handle.

The problem aggravates with the road side hawking and vehicular parking. The sky walk is an elevated walk way dedicated to the pedestrians connecting the railway station, high concentration commercial area and destination points where the concentration of pedestrians prevail. The purpose of the sky walks is for efficient dispersal of commuter's rom station/ congested area to strategic locations viz. bus stops, taxi stands, shopping areas, off roads etc. and vice versa. This would hopefully help to decongest the crowded streets. Foot over bridges or Sky Walks are one of the most efficient ways to achieve the above objectives of seamless vehicular traffic and safe pedestrian movement.

Fig.1 Old pune Mumbai highway

5.POPULATION FORECASTING:

Table 5.1 Population Growth in Study Area:

	PMC	PCMC	Pune Cantonment	Khadki Cantonment
1961	595762	46031	65838	58496
1971	856105	83542	69451	65497
1981	1203351	220966	85986	80835
1991	1566651	517083	82139	78323
2001	2328349	1083967	80191	77473

Table 5.2 Estimated Population in Different Areas :

	2008	2011	2021	2031
PMC	3372919	3756345	4807868	5443642
PCMC	1446142	1591873	1915320	2106123
Pune Cantonment	83046	84292	88603	93134
Khadki Cantonment	80232	81435	85600	89977

6.PEDESTRIAN VOLUME COUNT:

TIMING	PEDESRIAN NUMBER
08.30-09.30 AM	2560
09.30-10.30 AM	3133
10.30-11.30AM	2730
04.30-05.30AM	2235
05.30-06.30AM	2870
06.30-07.30AM	2738

7. PRAPOSED SKY WALK PLAN:

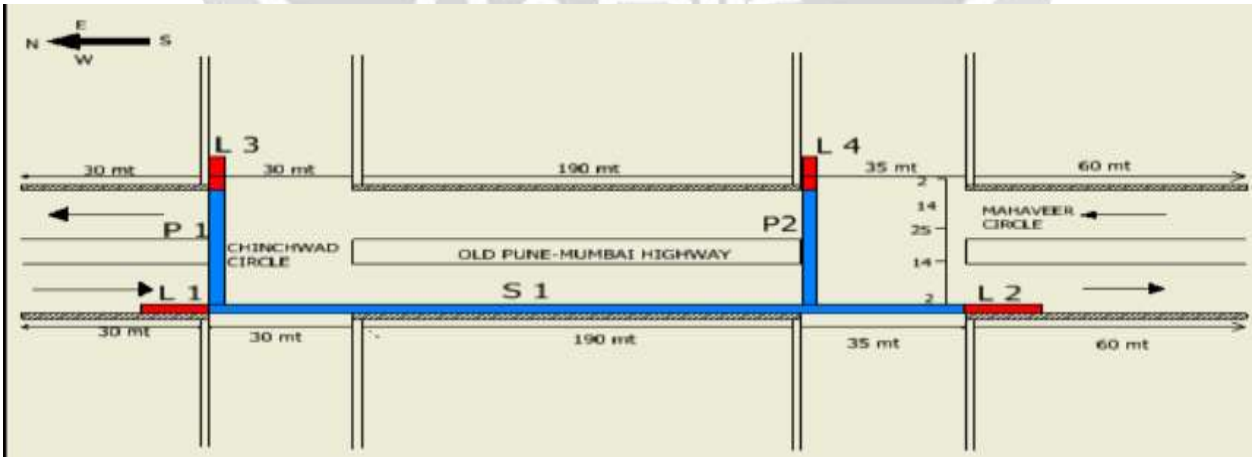

Fig7.1:Proposed Sky walk plan at old Pune Mumbai highway:

8.ECONOMIC STUDY:

1)CALCULATION OF ECONOMIC LOSSES DUE TO ACCIDENTS & WAITING AT JUNCTION :

Average monthly income @ 25 working days	Rs.35000
1 day income @ 8 hrs a day	Rs.1400
Hourly income	Rs.175
Income/minute (in RS)	RS.2.92
Economic losses of delay at junction/person/crossing @1min30sec/crossing(rs)	RS.4.38
No. of persons crossing in peak hour	2200
No. of persons crossing in 12hrs	26400
Economic losses of delay at junction in peak hour (in RS)	RS.9636
Economic losses of delay at junction/ day (in rs)	RS.115632
Economic losses of delay at junction/month (in rs)	RS.3468960
Economic losses of delay at junction/person/year	RS.41627520
Everage economic losses incurred due to road accident in a year	RS. 0.5cr
Total economic losses incurred in year	Rs.46627520

2) CALCULATION OF ADVERTISEMENT REVENUE COSTING :

Total length of sky walk (in m) including two bridge	360
Height of advertisement panel in skywalk (in m)	1.8
Maximum height of advertisement panel in skywalk (in m)	3
Taking average height of advertisement panel in skywalk (in m)	1.5
Total advertiseable length on skywalk (in m)	250
Tatal adevertiseable area on skywalk @average height 1.5 height panel in (sq.m)	375
Pcmc charges for advertisement per sq ft/month	Rs.300
Pcmc charges for advertisement per sq.m/month	Rs.3227
Total revenue from advertisement on skywalk/month	Rs.1210320
Total revenue 1st year from advertisements	Rs.14523840

3) CALCULATION OF REVENUE FROM HAWKERS:

Total length of sky walk (in m)	360
Usable length for hawkers (in m)	200
Length of hawkers shop (in m)	3
Width of hawkers shop (in m)	1.5
Total number of shop	66
Area of one shop (in sq.f)	48
PCMC rate for one shop / day	Rs.30
PCMC rent for one shop/day	Rs.900
PCMC rent for 1 year per shop	RS.10800
Total revenue from all the shops in 1st year	Rs.712800

CONCLUSION :

This study takes into account the time saving to the pedestrians and has successfully demonstrated that the project for pedestrians are also economically viable. The provision of sky walk facilities in congested areas will provide a safe and comfortable journey to the pedestrian.

Skywalk with space for hawkers, which will reduce the congestion near the station. The hawkers near the station are illegal. This will give them an opportunity to set up their stall legally, it will also motivate commuters who shop from the hawkers to use the sky walk

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