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Original Research Paper

Strategies For An Efficient Urban Transportation Planning : A Case Study Of Jammu,J&K

Architecture

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ABSTRACT

Living in 21st century and joining the club of Nuclear power, remarkable achievement in the field of medical sciences, launching various space programmes including Lunar and Mars mission, being one of largest military power in the world, our nation still falls in the list of developing countries and not in developed country. Reason being is low Human Development Index (HDI) i.e. the country does not enjoy healthy and safe environment to live, low Gross Domestic Product, high illiteracy rate, and many other factors along with the poor transportation system of the country. Studying the last 20 years of traffic of any city or area, the most common observation found is a random increase of vehicles on road which further results in traffic congestion. To tackle this problem, an efficient and an appropriate approach is required in the field of Transportation Planning. Jammu being in the list of upcoming smart city needs to work on many fields along with the transportation system. City requires different schemes and programmes embracing both traffic restrains and promotion of public transportation.

Introduction:

Over many past years the most common problem which one can observe while traveling from one region to another is traffic. This traffic problem is a major issue which has been faced by every section of the society. The core of the problem lies in a random increase in vehicles on roads caused due to manifold increase in vehicles ownership and use of motor cars. While doing Urban Planning and Transportation Planning for any city or area, one of the main objectives which a planner need to achieve is to resolve congestion by developing an integrated traffic system including both public and private transport along with the pedestrian traffic. A planner use measures of safety, connectivity, mobility, accessibility along with the congestion to evaluate the transportation system. Urban Transportation Planning is a psychological, Socio-economical, ecological, architectural and engineering job. A planner needs to make every possible approach to accommodate the real needs of people.

Jammu being the winter capital of J&K state is presently the most populated district out of the total 22 district of the state. The total population as per census 1981 was 9.43 lakh which has been increased to 15.26 lakh as per census 2011. With this total population of 1526406 as per census 2011, there has been a strong increase in the ownership and use of motor cars which become a major challenge for the city to regularizing this motorized traffic and also promoting a greater security among the residents, pedestrians and cyclists, thus to create an improved environment. An Urban Transportation planner require to work on five major steps to come up with an efficient transportation plan dealing with the present traffic as well as the increased traffic in future. The five major steps which a planner needs to follow are:

- Evaluating the present transportation system.
- Forecasting of future usage of transportation system.
- Setting of objectives through the identification of problems along with the resources and constraints.
- Selection and detailing of optimum plans.
- Identification and prioritization of investment into the transportation system based on the present scenario and forecast of future usage.

Along with these five major steps a planner need to work on other major factors as psychological, ecological, Socio-economical, architectural and engineering, which a planner need to consider to come up with an efficient transportation plan. Talking about psychological factor, a planner should always plan according to the real needs of people and do not forget the children, the elderly and the disabled people while doing the planning. The improved conditions for walking and cycling users should be created. The aims should be on improved road safety, reclaim space for pedestrian and non-traffic activities. By doing so a planner promotes feelings of greater security among residents, pedestrians and cyclists. Looking into the Jammu , the heart of the city being the part of old city including Kachi Chwani, Parade, Raghunath Bazar, Canal Road and many other nearby places, the roads are not wide enough as per the traffic volume. Insufficient parking places, very few footpath and no dedicated pathways for cyclists and pedestrians results in on street parking, pedestrian movement on the road instead of footpath and all this end results in traffic congestion. This traffic congestion leads to the probability of more road accidents and thus promotes feelings of greater insecurity among the users.

Fig 1: Traffic on Canal Road, Jammu

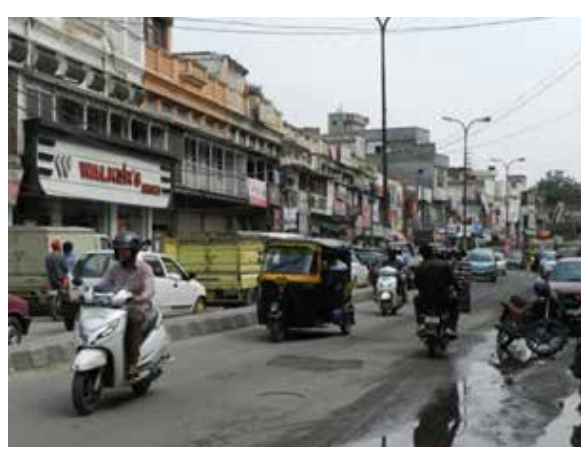

Table 1: Availability of footpaths in Jammu

S.No	Existence of footpaths	Length of roads (in Kms)	%age
1.	Footpath on one side of road	6.40	4.27

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2.	Footpath on both side of road	11.06	7.39
3.	No Footpath	132.28	88.34
	Total	140.74	100.00

The next important factor which an Urban Transportation Planner needs to consider is Ecological factor. While doing any type of planning, a planner should always consider its impact over the nature and thus to the environment. Due to the increase of vehicles on road, more exhaust of fumes, more noise and more vibration occurs, which is becoming one of a major cause of environmental imbalance. A planner should always plan in such a manner that the environmental ranking of transportation modes must be followed, i.e., walking is preferable to cycling, cycling is preferable to public transit, transit is preferable to private car traffic. Residential streets should be planned in a manner that it creates an impact on the user that the destination can be reached easily and comfortably without motor cars. Streets should be such that it invites and offer space to play, do cycling and walking, creating opportunities for social contact, offering space for recreation. This method of achieving calm, safe and environmental improved conditions on streets is termed as 'Traffic Calming'. Traffic calming was initially applied primarily to residential areas, but is now starting to be extended to whole cities. While studying the street environment of Jammu, a planner need to put a major effort in traffic calming by proposing the concept of the 'Neighborhood Unit' to provide adequate standards of living conditions in a areas by suggesting social services and facilities such as community center, market place, school and parks and thus avoiding through traffic which should be confined to their periphery. By designing such a neighborhood unit along with the road side trees, a planner could achieve the aim of : (a) reduction in the severity and number of accidents in built up areas; (b) reduction in air and noise pollution; (c) increasing the use of non-motorized forms of transport.

Socio-economic factor is another major factor which a planner needs to keep in mind while doing Transportation Planning. The prosperity of a city does not only depend upon good infrastructure, big shopping malls, big offices, industries etc. but also on accessibility, mobility, connectivity and safety of road. Efficient transportation system will help in boosting the socio- economy of the area. A transportation planner use measures of congestion, accessibility, mobility, connectivity and safety to evaluate transportation system's health and determine where future investments are needed. Measures of congestion are intended to evaluate the performance of the transportation network and to diagnose problem areas. To evaluate transportation system, a transportation planner needs to study four major categories of congestion measures, first category should explain the duration of congestion experienced by users in some way; these includes delay, risk of delay, average speed and travel time. The second category is to analyze how well the transportation system is functioning in a given location by considering Volume-to-capacity (v/c) ratio, which is usually expressed as a level-of-service (LOS) category. The third category is that of spatial measure including queue length, queue density and vehicle miles travelled. The last category consisting basically of travel time reliability and the number of times a vehicle stops because of congested conditions. While studying the road network of Jammu, roads are narrow with very few 4 lane roads and traffic volume has tremendously increased in past ten years due to which end result is traffic congestion.

Fig 2: Road side Parking on Residence Road, Jammu

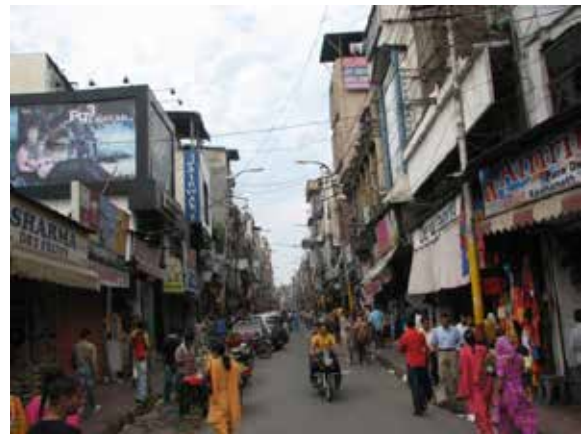

Table 2: Distribution of Roads by Carriageway Width in Jammu

S.No	Carriage way width	Length of roads (in Kms)	Percentage
1.	2 lanes or less than 2 lanes	122.48	81.80
2.	3 lanes	15.78	10.54
3.	4 lanes (without central verge)	-	-
4.	4 lanes (with central verge)	9.11	6.08
	Total	140.74	100.00

Architectural factor can be achieved by a transportation planner by proposing more plants and trees within the streets and road side, thus improving street climate and visual impression and hiding bad architecture. Engineering plays a major role in integrating all the factors together. An efficient transportation engineering involves planning, design, construction, maintenance and operation of transportation facilities in order to provide safe, convenient, efficient, rapid, and comfortable movement of people as well as goods. Engineer should design roads in such a manner that the road could accommodate present and forecast future traffic volume.

By looking into the present traffic and transportation conditions of Jammu, a planner can easily able to understand the major problems need to solve on the urgent basis before the situation goes out of control. These major issues which an urban transportation planner need to handle like traffic congestion in core of the city as well as the other part of Jammu, insufficient parking, insufficient carriageway width, insufficient footpath, lack of overhead or under passes and traffic regulation methods. To handle these major issues, planner need to work on need to work on psychological, ecological, Socio - economical, architectural and engineering factors along with basic proposal in transportation plan like decentralization of CBDs, Multi-tier parking, proposing more ring roads, new bus stands at the periphery, dedicated bicycle tracks, regulating public transport along with fixed stoppages, overhead or underground passes in areas with heavy volume of traffic reas.

Conclusion:

Thus, the strategies which an urban transportation planner needs to follow is to incorporate all the factors along with the basic transportation planning steps to come up with an efficient traffic and transportation plan considering the present traffic scenario as well as forecast traffic in future. But any efficient plan cannot be implemented without the full corporation from administration without delaying the programme to suit political manoeuvers.

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