

DESIGN OF PUBLIC TRANSPORTATION IN SHOPIAN CITY

A DISSERTATION REPORT

Submitted by

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DECLARATION

I hereby declare that the pre-dissertation report titled “**Design of public transportation system in Shopian City**” is an authentic record of my own research work carried out as a requirement for the preparation of M-Tech dissertation for the award of Masters of Technology Degree in Transportation Engineering from Lovely Professional University, Phagwara, Punjab, under the guidance of Mr. Waseem Bhat, during the period between August 2017 and November 2017. All the information furnished in this report is based upon my intensive work and is completely genuine to the best of my knowledge. And no part of the incited work in this report has ever been published before in any journal or presented for the award of any degree or honour.

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ABSTRACT

The study deals with the analyzing of existing public transportation system. The study is fully based on the results of the studying the public transport network, its emerging requirements to make it as cost effective and useful in other means also for the public and make the whole public transportation system as friendly with the environment. The Public transportation is a key role in the progressive development and wellbeing of the society. The public transportation is to be established by specifying the bus network designs. In this study the various transportation surveys were done and the possible outcomes for the maximum use of public transportation were procured. The various issues faced by the use of public transporters are being studied and the suggestive measures for minimizing the same have been given. Busses have been the most economical and efficient source of the public transportation hence the root solution for growing traffic congestion environment preservation and road safety problems. The private and public transport preference is based on the individual choice but the influential measures have been shown which act at the time of decision. Besides these measures the study focuses on the Bus rapid transit system to be introduced as a well stabilized and long term solution to the traffic congestion.

INTRODUCTION

1.1 General

Public transport is a joint passenger transport service which is used by the general public, it is different from modes such as taxicab, hired buses, and transportation network companies. Public transport modes include buses, light rail, passenger trains, rapid transit system and ferries. Public transport between cities is mainly by airlines, coaches, and rails. Currently in many parts of the world high speed rail networks are being developed. Trains and buses are the main modes of public transport in India presently. Rail network in India is the longest in the world. All rail operations in India are run by Indian Railways. For over a century Indian railways are working hard to provide rail services to the remote areas of country. Air buses are the next choice for travellers after the trains in India. About 90 per cent of public transports in Indian cities are carried by buses.

Rapid transit railway system mainly operates in an urban area as they have high frequency and capacity. These Systems are able to transport large people quickly over short distances. Rapid transit includes people movers, small-scale light metro and the commuter rail hybrid. More than 150 cities have rapid transit systems, totalling more than 8,000 km of track and about 7,000 stations. In 25 cities these systems under construction. The most common type of public transport bus service is Urban transport service, large numbers of people in urban areas are carried by this service.

Express bus services provide faster service than normal bus services this is done by minimizing the number of stops and by travelling on the freeways rather than slow moving local roads. Park and ride bus services are a type of service that are designed to provide an onward passenger journey from a parking lot. While Feeder bus services pick people in certain locality point where they make an onward journey on a trunk service. Feeder buses may act as part of a wider local network, or a regional coach network.

Patronage of public transport system:

Since majority of population is having average income so they cannot afford private cars, so policies should be adopted so that need to travel by private mode of transportation is reduced. Furthermore due to increasing population, fuel prices and its scarcity the public transport should be promoted so to ensure sustainable mobility to all people. Given the present concerns of pollution, fuel security and urban land as a scarce resource, there is a consensus that public transport has to be promoted to ensure sustainable mobility to all. Two wheelers provide convenient and economical mobility but risk factor associated is also the maximum.

1.2 NEED OF PUBLIC TRANSPORTATION

The Social necessity of the Public transport is that it helps development of oneness in community. Viz, the people who are travelling collectively are more expected to feel a commune linking than those who are travelling in cars in separation. The public transportation encourages the people have better cultural behaviour. Public transport Offers manageable transport to the people not considering about the demographics such as age or income. Also economically the trips are cheaper than that of the having a car. Besides that the need for parking is reduced hence the valuable land can be save. The environmental necessitate of the public transport is in the way that it is reducing road congestion and hence the pollution. As more people will travel by bus or train, the fewer the cars on the road needs and land use for road infrastructure.

Some other benefits which also demand the public transportation are as:

1. Safety: Travelling through a bus is 79 times secure than travelling via automobile, and travelling through a train or subway is even more safer.
2. Health: People who are using public transportation regularly are healthier than people who do not use the same it is only because of the exercise they get while walking to and from their homes, offices and bus stops.
3. Cost savings: According to the study, the families that are using public transportation can reduce the household expenses annually by \$ 6,200.
4. Public buses help in maintaining air cleaner: Pollution causes as several deaths per year likely same as due to the traffic accident.
5. Public transportation is affordable and hence cost effective.
6. Public transportation provide right of entry to essential needs later on in life.

1.3 PROBLEMS BACKGROUND

The rapid growth in the urban population has put huge stresses on whole transport systems especially on the public transport system. Most of the public transport systems e.g. bus and train services are overcrowded, undependable, and clumsy and time consuming. Cities in India are in immediate need of better and enhanced public transport service. .

The numbered problems include:

1. Irregular plan for public Transport System:
2. Lack Co-ordination between rails and roads
3. Tattered and Out dated Assets of public transport system.
4. Out dated technology

Further restraining the use of polluting vehicles and fuels large numbers of inefficient, polluting, noisy and uncomfortable vehicles make public transportation unattractive. Thus, there is a need to harmonize public transport vehicles with environmental standards. Some steps to ensure that these vehicles operate more efficiently and cleanly include:

1. Phasing out of older vehicles and increases in number of new vehicles.
2. Increasing annual motor vehicle tax, with the age of vehicle.
3. Institution of parking restraint to promote public transport.

1.4 SCOPE OF STUDY

The introduction of the public transportation will enhance and flourish the main economic development sources and the people will get the more benefits. The condition of the roads will be stabilized and maintained at the effective levels by playing less number of vehicles on the roads and hence there will be a great benefit of less congestion. The congestion which is a major issue of the current transportation is having thus a proper and effective solution lying in introducing public transportation. As the study area is having a large no of connected roads bus less carrying capacity so there is an immediate need of the introduction of well planned public transport system. The main and important income source of the city that is apple production will get an enormous benefits and the business will also flourish with the commencement of the public transport in the city.

1.6 OBJECTIVE OF STUDY

1. To identify opportunities for starting multimodal nodes in the district.
2. To highlight safety in all origins of carriage system and combine the contemplation of framework in which an assignment is proposed for safety developments for all programmes.
3. To boost safety for all public transportation operators and to propose references for the improvement in the system.

1.5 INTRODUCTION ABOUT STUDY AREA

Shopian is one of the districts in the state J&K in the State. It is considered one among 22 districts. The Mughals first travelled to the Kashmir valley through this district hence it has a historical. It is having Hilly topography as it is located in lap of foothills of pir panjal range. The total area of shopian is about 30,741.6 hectares. as it is located on the prehistoric road known as Mughal Road. Shopian town is situated at a distance of about 51KM from capital city Srinagar & 20KM from its parent district i.e Pulwama .The district is located on 2146Mts above the sea level. It has decades of old road connectivity with Anantnag and Kulgam districts. According to census-2011, the total population of shopian is 2.66 lacs which include 15% of ST population. And having a literacy rate of 62.49

Road Transport: Shopian is well connected by roads it is about 51 KM by road from Srinagar. Jammu & Kashmir State Road Transportation runs Busses from main cities to Towns and Villages in this District.

Rail Transport: There is no rail connectivity to the city. The nearest railway station is in the district of Anantnag.

Table 1-0-1:-showing the population of the study area

District	Area (Km) ²	Population according 2001 Census	Population According to 2011 Census
Shopain	613	211,332	266,215

LITERATURE REVIEW

1. Avishai Ceder (2004)

According to author the basic reason for the development of new transportation system is to keep environment safe and clean and increase the road safety of the passengers as well as the pedestrians. The paper gives the main factors and demanding situations which leads to the creation of a brand new or an advanced public transportation gadget. The study is all about providing the modern public transportation practices of identifying the issues of why or why not to use public transport including the willingness to pay, feasibility and projection perceptions. The paper concludes that enactment of any Public transport proposal drive to cost the taxpayer a success. However, the worse may be the situation without execution.

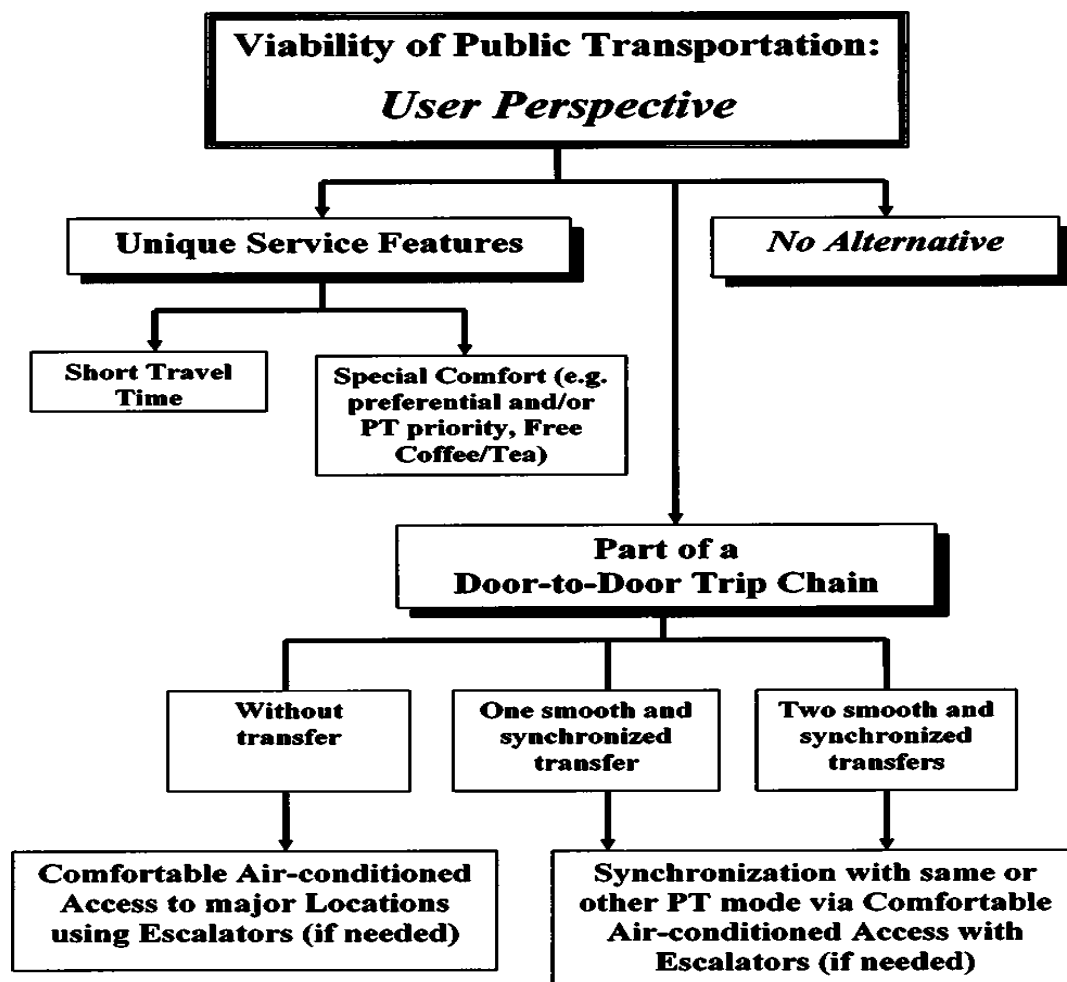


Figure 2-1: Viability of public transportation User perspective

2. **Yang Qin** (2011)

In this paper extensive study has been done on the bus rapid transit system and express railways building in many large cities as how they can be the chief means to solve the problem of congestion in these cities. “Point to line” concept of urban transport system is used by the author to develop the efficient public transport network in the cities which will enhance the efficiency of the transportation system, meet the demands of the passengers, reduce the running cost of this system and furthermore reduce the consumption of fuel per person per kilometre travel. Point refers to the personal residence, hospitals etc. in the city. While as line is referred as main line of transport system in the area. It is concluded that we should divide the transport system as well as vehicles into different classes based on their functions. Further intelligent system block should be used to guide all urban transport systems to all places and destinations so they can be effectively connected to each other.

3. **Chhavi Dhingra** (2011)

The Researcher has put out how the present developments in quality management in different fields then UPT can be implemented in UPT with identity of fine practice and properly advanced general first-class control. To advocate tips to government and operators involved in UPT provision on problems of tendering, contracting and overall performance monitoring, with a robust attention on excellent. The take a look at additionally recognised that the fine of urban public delivery changed into depending on a number of factors just like the capacity of the operator to manage his employer, running situations, role of the general public authorities (roads department, police, etc.). At present, in many developing towns, the above thoughts and practices are absent. Taking the instance of India, wherein public shipping is largely bus-based and a kingdom stage feature, cities have little or no function to play inside the making plans, provision and tracking of public delivery. The state bus companies commonly run in losses and with none incentives to enhance fine and inside the absence of a coverage directive/regulation to degree and enhance performance, bus operations in cities retain to stay inadequate and unattractive.

4. **Sutanto Soehodho (2016)**

Providing enough and lower priced public transportation is an effective way of combating motorbike use and, by using extension, decreasing visitors injuries. Development tasks for some modes of public transportation were ongoing in Jakarta and being accompanied by means of different massive towns within the United States with comparable aims and objectives. It is further anticipated that various funding schemes regarding the non-public area now not simplest national and sub-countrywide budget sources will accelerate the availability of public transportation and improve ordinary visitors safety.

5. **Brian Caulfield and Margaret O'Mahony (2007)**

The study is all about the provision of information about the public transport in the city of Dublin Ireland. The various stages of the passenger under which he has to gone when deciding to take a public transport trip, and in what form the one is receiving the information about this all. Mainly the study has taken into consideration the Bus, light, rail and heavy rail as the three modes of public transport in the city. The frustration level of the passengers is being provided graphically by the author and all other survey results like at stop information, On board information, Pre trip information shows that there is much to change to improve the public transportation so that more and more people would like to use it. The study shows that lack of certainty at the time when services would arrive is a main factor which causes passengers frustration at the time of using the public transport and also the public transport information is more likely to be used by those on multimodal journeys.

6. **Nuannan Leng, Ulrich Weridmann (2016)**

The study is about the rail disruptions and the changes in timetables due to various problems discussed in the paper ^[7]. The main purpose of the author is to have a connection between the train operators, passengers and the organization managers in relegate to a specific destination process of the railway disruptions. From the research the demand of the passengers can met to highest extent. Studies on the passenger recreation in the case of the disturbances will complement methods for the vibrant passenger streams. Also the real time railway rescheduling will be enriched by defining and qualifying passenger's level of service. The hypotheses contain that it is likely to establish appropriate functions to estimation Passengers pleasure including journey time, handovers and train tenure and

adapted services such as train outlines, stops and links can be considered by train operatives for travellers, pleasing passenger numbers and priorities into contemplation.

7. Francesco Ciaffi, Ernesto Cipriani, Marco Petrelli, Rasa Uspalyte-Vitkuniene (2014)

In this paper detailed studies are conducted on design of bus network. Problem is formulated as such so there is minimisation of the resources and costs related to the public transport system and this procedure is proposed for the design of bus network. The bus network design is characterised by multimodal transit system in urban areas. The whole procedure is divided into the parts with first routine for definition of roads and zones which is to be served by this system. After that the second step is the route generation after that algorithm is developed to find the optimal set of routes and frequencies associated with the routes.

8. Dean Papajohn, Quing cui, Mehmet emre bayraktar (2011)

The study provides the various methods of finance and the types of risks in the public private partnerships. The economic considerations according to various researchers have been utilized by the author and states that the services that were formerly for the public they may not be ready to pay for these services. Ultimately the monopolies may be improved by public private partnerships and thus will facilitate them to increase the user charges by the private sector ^[9]. The survey results specify that the states have the varying experience and having about 40 % or more states which are planning for the beginning of the public private partnership s. The research essentially advances the execution of the public private partnerships the United States and promises for the best accepting of the factors of the public private partnership.

RESEARCH METHODOLOGY

3.1 General

The option of mode of the transport is most likely an important and dynamic classic models in planning of transportation system, and that is why the key role adopted by the public transport in the making of plans. The different modes of the public transport expresses the road break usage efficiently than the private transport and have more social advantages like when the more people begin to use the public transport the less overcrowding will be there on roads and hence the less miss happenings and more economic benefits

This can assist an aim of creating public transport greater efficient and decisive within the development of new infrastructure, In order to increase usage amongst each existing customers and present day non-users in their public delivery structures, the city needs to:

1. Speed up the core services, perfectly by means of the practice of converting them to a little shape of segregate rail-based absolutely and bringing in the bus precedence.
2. Streamline routes more commonly and thus recognition on great regularity on centre corridors.
3. Cut fares via the condition of included term tickets.
4. put together offerings at some period in modes.
5. give immoderate high excellence contemporary day, clean, safe motors, and stations and stops.
6. Reduced parking availability/multiplied parking charges, that works to help public transport will all cause more patronage will increase and modal shift, even though they may no longer always be described as what the citizen might need from their public transport system.

For an introduction of the public transport in an effective way. The first standard is to offer an easy and solid inter-related network of public shipping lines at some stage in the day with a shape and timetable that is straight forward for users to learn and recognize. The second main standard of system making strategies is to basically accept and assist the system that many, doubtlessly even a majority, of people will prerequisite to difference between services to entree their certain endpoint.

3.2 Existing public transportation in the city:

The public transportation playing normally in the city of Shopian consist of sheared taxi four wheelers and the busses which are in performance very less in number on the shopian to Srinagar road only. The major outer city connecting roads shopian to Nehama, shopian to kulgam, shopian to Srinagar take most of the trips generated.

The modal share data calculated by conducting the surveys on the road transport and on the other side the public transportation modes among which busses are the main modes that contribute to the road transport are missing in the city. Hence from the modal share data maximum passenger dependency on the road transportation can be seen but on the other side the public transportation which gives the main shape to this is missing from the Shopian district.

Table 3-1: Modal shares for passengers and freight

Mode	Road Transport	Rail Transport	Sea Transport	Air Transport
Passenger	84.1%	7.3%	1.8%	1.5%
Freight	91.3%	0.6%	1.0%	0.1%

The immediate need of introduction of more bus services in the city is being seen as from the conducted surveys. The city's most busy areas like the Bata-pora chock at Shopian – Srinagar road, the goal chakra at the city centre and the college road area are in immediate need of providing the short trip vehicles which will play in the in skirts of the city and will provide to public a new and immediate access between one job centre to another in the city.

CONCLUSION

The analysis of the surveyed data show that the passenger trips generated are very much troubled due non availability of the efficient public transport in the city is the passenger disturbance mostly in the student community is seen by having the interviews about the public transportation facilities and conducting the surveys. According to the aspirant of the study area the facilities provided by the existing transportation system is not up to the required level. The population in the outskirts of the city if connected by the public transit system would get the more benefits.

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