



Role of Connectivity in Multi-Modal Transportation System.

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ABSTRACT

Circulation is a factor of utmost importance when we are referring to public buildings. Aiming to achieve a free-flowing circulation, there are basics of circulation to be cleared. Design of spaces in transportation hub and making it easily accessible for end user is a basic designing concern. Thus, ACCESS or CIRCULATION plays important role in design.

One prominently issue which is faced in public building, which usually have heavy public traffic is they do not usually find appropriate path to reach a place in time. Apart from horizontal circulation, vertical circulation carries equal importance and they should not be disproportionate. Nearly in every existing transportation hub seen has a little or more confusing circulation was highlighted during surveys. The circulation to and from the transportation hub is also paramount.

This article discusses about different factors to be taken into consideration for having efficient circulation in hub. In the conclusion it can be seen a single reason or factor doesn't affect any circulation of transportation hub but there are various vital factors to be thought of.

Keywords: Circulation, Transportation hub, Public building, Transit hub, Multi-model transportation, Free-flowing circulation.

1. Introduction

Multi-modal transportation, also called as combined transportation is a place of transportation of people (or goods) under a single contract but performed with at least two different modes of transportation. Multimodal in public transportation accommodates several ways of public transportation users get to and from on service station to another or intermediate stop-points. Any two or more than two modes of public transportation can be combined together under single shelter for easy accessing. Multimodal hubs are very systematically managed in all respects taking in consideration public walkways, public crossings, car driveways, bus routes, skywalks, etc.

Major objective of multimodal transportation is to strengthen link between various modes of transportation present in close proximity, thus the ultimate goal of multi-modal interchange that combines various modes and their associate functions to achieve a better degree of transportation can be achieved. Multimodal hubs lead to development of transit facilities as per user rate, comfort and affordability. This also increases the land value on urban scales. In the case of traffic congestion in a particular area multimodal transportation system helps to resolve these problems by promoting better transport network in that area.

2. Methodology

Interview:

Individuals and few experts were taken into consideration for getting first-hand information for this research. A questionnaire of ten basic questions was formulated. This was the major source of information we collected first hand. Quite broad topics were covered in it like positive and negative points of a particular transportation hub visited, if the hub has user-friendly circulation, is it possible to move around the hub efficiently in every period on day, ratio of horizontal to vertical circulation lobbies, etc.

Online documentations:

Referring the documentation done by some experts in this field was the major source of information for this paper. Various article and papers from different site were read and analysed. This helped to gather more information in less time and effort. It also helped in getting actual and explanatory records of experience that may be useful as guidelines to produce results as this method carries out intensive study of all aspects of a unit or a problem selected for research.

3. Need and Scope :

Now-a-days we see that as number of private vehicles on road are increasing due to time required to travel through public transport, time taken to interchange mode of transport, fair prices, traffic clogging, etc. This also increases air pollution and also people are delayed to destination due to traffic. Solution to all this is well managed public transportation system. There is need for transportation hub to be well managed and well maintained with good circulation and is user friendly.

Proposing wide lobbies and stairways can develop more easy circulation. Precautions should also be taken when the hub will be ready to use that excess space from the circulation is not getting waste in seating arrangements, vendor stalls, security checking, sanitization points and waiting spaces on the hub.

Therefore, enough space for people to move in lobbies and on staircases is one of the major factors to be considered while designing a transportation hub.

4. Parameter of Transportation:

Some transportation hubs are better but some transportation hubs are great. In order to make a transportation hub great here are few parameters to be considered.

Multi-Modal:

Multi-modal transit choices are a important component to a great system. Offering a variety of modes of transportation—from bus and train to bike, car-share and taxi—is an ideal way to meet the needs of users and boost their trust on public transportation system. Going multi-modal also doesn't have to increase overall cost the average cost gets divided between users on share basis, which affordable for high as well as low-income group travelling by these transports.

Informative :

Putting information in the hands of users is a sure way to improve user experience. Waiting for a bus or train that has an uncertain arrival time makes the wait feel much longer and prevents people from planning their journeys. A passenger information system that displays arrival times—updated in real-time—can go a long way to making waits feel shorter and encourage more customers to trust the transportation hub system.

Frequent:

No one wants to stand on the side of the road for 30 minutes waiting for a bus. Frequency is one of the most important factors of a great transportation hub system, and has a direct correlation with route efficiency and user experience. Simply increasing frequency is a very effective way of improving service and making users happy.

Fast :

Frequent transit means nothing if a string of buses gets caught in traffic. A good transportation hub is both fast and frequent. One way to achieve this is to beat congestion by creating dedicated bus lanes like BRT. Dedicated bus lanes can double bus speeds and move more than two times as many passengers per hour than regular-lane traffic. The faster and more reliable a transportation system, the more people will use it.

Interesting :

Transit is often seen as nothing more than an unpleasant but necessary part of a daily routine. This does not have to be the case. Some agencies are looking into gamifying transit to energize ridership. There are many different ways to do this. That is providing television screens, mini game points, mini libraries or simply resting areas for the users.

Comfortable :

Comfort is an often-overlooked foundational component of great public transportation hub. Transportation hub needs to be convenient and accessible for all users. In a survey of transportation hub users, the top ten systems rated for comfort were fully wheelchair accessible. General comfort and cleanliness are also important: one study found that comfort (seat quality, ceiling height, leg room) was one of the most important factors in transit service satisfaction.

5. Results and Discussion:

From the interviews it was concluded that horizontal circulation included hallways, atria, paths, entries and exits. It is also affected by the furniture layout, or other objects in the space such as columns, permanent seating platforms, vendor stalls, etc. Vertical circulation is included how people move up and down within the hub, so includes things like stairs, lifts, ramps, ladders and escalators which allow us to move from one level to another. Also, in some cases skywalks can be also be a part of circulation system in transportation hub. Places where there are smaller lobbies in proportion with the crowd, users face problem while moving from one place to other. Few people also demanded for wider staircases and lobbies in post covid situation which will help to maintain a bit of social distancing.

6. Conclusions:

This paper introduced an approach to design appropriate circulation in transportation hubs considering basic design and other factors. It is based upon an understanding of users' needs and concerns balanced by good proportion of exterior and interior volumes as far as circulation and habitability is concerned.

There is general agreement across all users which were interviewed about the high importance of safety and security, information to passengers, car parking facilities, buying tickets and waiting for modes in reasonable comfort. The circulation approach would be to concentrate on; successful connectivity in the intermediate area, ensuring safety for traffic and pedestrian circulation.

The railway station has to be modernized for high-speed trains and the reorganization of inner-city bus lines and parking space in connection with the internal spaces in the form of a new building a central hub is one of the proposals.

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