

Design of Transportation Hub- A Case Study

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Abstract - In road based freight movement trucks are major mode for mass movement of goods and hence it is occupying major road area. Trucks are slow moving vehicle compare to other passenger vehicle and there for it plays major role in congestion of roads, in any highway which is connecting urban area there is always conflict between urban traffic and regional.Traffic, where highway is mainly designed to cater regional traffic but urban agglomeration growing in outskirts gives additional pressure on existing highway. They have to carry traffic of population staying in near urban area and their activity. But in supply chain urban area is end point for delivering any product and hence its loading and unloading activities has to be done somewhere near by urban area, because of need of large parcel of land for carrying out these activities in inner area is not possible and generally it takes place nearby urban area where due to many local problems and mismanagement traffic issues occur. This study will mainly focus on understanding traffic movement in similar kind of area its operation and parameter affecting for its smooth function.

Index Terms - Transportation hub, Traffic Issue, Survey work .

I. INTRODUCTION

Transportation hub can be defined as a location which handles several transport modes. This goods Transportation Activity doing with the goods transportation Companies. First transport hub in Mangalore Developed by Hindustan Petroleum Corporation Limited, the hub will provide good food and comfortable shelter to weary drivers. In road transport, the lack of proper terminals and transshipment facilities lead to losses. Each mode has different limits on the maximum weight of a shipment, different cost structures, and different transportation times from decentralized systems[4] with many local warehouses to centralized systems with only one or a few central distribution centers.[5] A public logistics terminal is a third party terminal, depot and/or distribution centre placed in a planned area of a major city. It has the planning right to operate into the future without rezoning restrictions. [6].Traffic pattern on Indian roads is highly heterogeneous in nature. There are around 58.8 million vehicles in India, which are growing at the rate of 10% annually. It is found that two wheelers make a major contribution (70%) to the total newly registered vehicles in India, followed by cars (13%), goods vehicles(6%), and one percent of buses. In India work trips are the most important component of the traffic demand during peak hours of the day. Transport demand is likely to increase by about 2.5 times from

1991 to 2010 in large metros and other medium sized cities by about 3-3.5 times.[7]

II. STUDY OF PROPOSED LOCATION

Sarkhej is the main entrance point of Ahmedabad city. If any person coming from Saurashtra & Kutch region they have to pass or enter in Ahmedabad then Sarkhej is the initial point. Sarkhej is the junction point where the traffic is passing both of the regions; one Ahmedabad to Saurashtra, another Ahmedabad to Kutch region. In this area the good transportation industry is very wide field because many industries and companies are established. Many different areas very highly developing in present and it will also develop in future. So the different regional traffic caused conflict in the Sarkhej junction area.

III. RELATED ISSUES

There are the many issues related to the transportation is the wide subject. In particular issues related trucking industry are the traffic issues, Goods transportation issues, security issues, corruption issues, transport operator issues, truck driver issues, basic facility issues, parking issues.

A.Traffic issues

Traffic issues due to the Truck Transportation Activity are the very general in all over. The traffic issues include congestion, encroachment etc.

B.Transport Operator's issues



Fig. 1 Transport Operator's issues

C.Truck Driver issues

The driver issues include Security, Lodging, Rest area, Parking, Health etc. some Figure are indicated are as below.



Fig. 2 Rest area near Intersection

The trucks are parked in non permitted area during noon and night , picture is shown in Fig.3



Fig. 3 Unauthorized parking at road side

IV. OBJECTIVES

Transport operators provide the services like transportation and warehousing. Almost all the major players like Jaipur Golden, Jamnagar Transport, Lalji Mulji Transport, Vijayanand Road lines Ltd., etc. are operating from Sarkhej. Provision of value added services like packaging; temperature control, etc. are very negligible.

1. To understand Truck Transportation Activity issues & its influence on regular Traffic flow at junction by traffic surveys.
2. To identify the issues of Truck Transportation Activity Holders of the selected study area.
3. To give a suggestion possible solution for issues related Truck Transportation Activity.

V. METHODOLOGY

The following survey carried out in selected study area.

1. Truck Halt Volume count Survey
2. Truck operator interview survey

A. Data Collection and Analysis

a) Truck Halt Volume count Survey

The idea behind the truck halt counting is mainly focus to need of terminal facility for truck parking area for truck drivers which is absent in the study area. Trucks halt data represents the truck are park in study area. The Sarkhej contains huge volume of trucks parking after unloading of goods at transport Company. Trucks halt survey conducted by manual truck counting process. The survey conducted in

working hours of transport Company during 9 to 12 and 5 to 8 time.

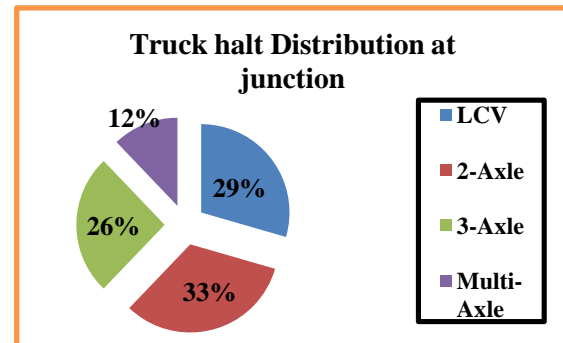


Table 1: Truck Halt Volume count

b) Truck operator/ Truck Driver's interview survey

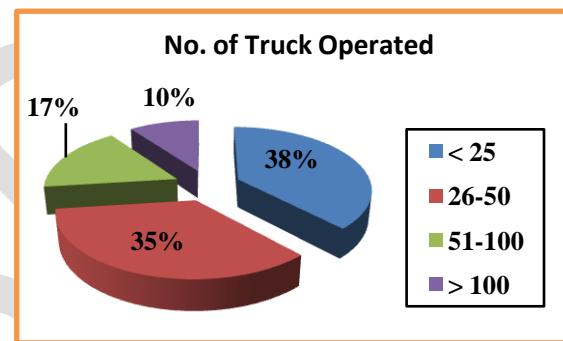


Table 2: Outcomes of the transport operator

c) Present parking place of trucks for parking

The graph showing below is parking location which transports operators using presently.

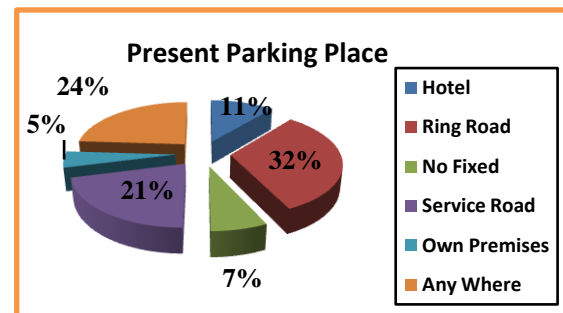


Table 3: Parking Places for Trucks

d) Purpose of truck drivers for coming in Sarkhej

The truck drivers are coming with different purpose relative to transport operatio insarkhej area. The different purpose of the truck drivers are loading,unloading,waiting for trip& other activity.the 53% of truck drivers are coming for unloading,32% presenting other activity like halt for rest or

food. the 6% truck drivers are presenting waiting or trip, 9% truck drivers are coming for loading purpose.

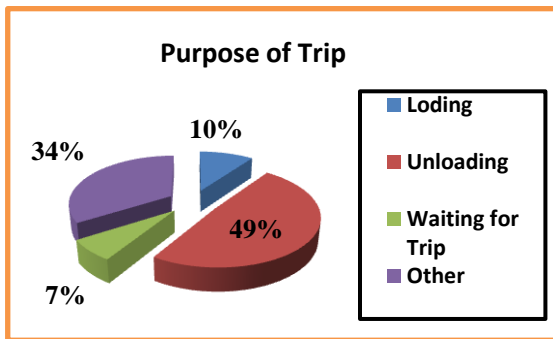


Table 4: Trip Purpose

e) Spending time at Sarkhej by truck drivers

Truck drivers who come in Sarkhej area for different purpose they are spending time according to their requirement. The 29% truck drivers spend 1 to 2 hrs., 18% spend 3 to 6 hrs., 14% spend 7 to 10 hrs., 8% spend 11 to 13 hrs., 3% spend 14 to 17 hrs. the remaining 28% truck drivers spend 24 hrs. because they park their trucks 24 hrs. as a fixed place of parking.

f) Fixed parking place to park truck

The pie-chart which shows the fixed parking place for truck parking. Only 28% of Transport Company they have fixed parking place to park their trucks.

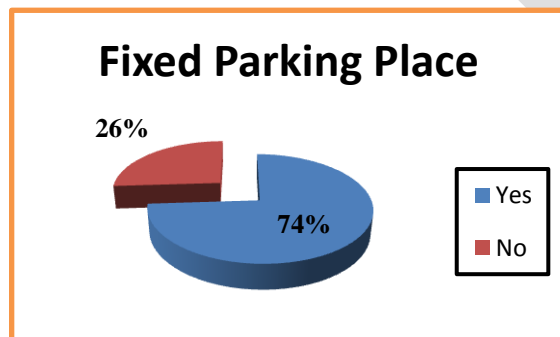


Table 5: Parking Places

g) Parking fees paid by transport operator for truck parking

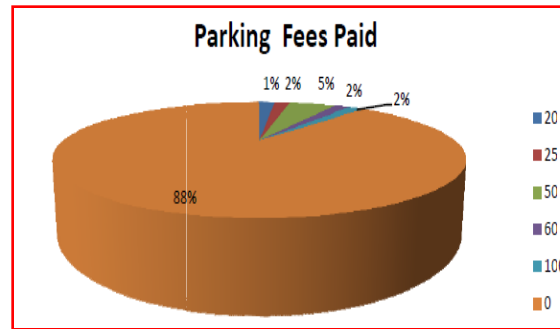


Table 6: Fee paid by Transporter

h) Willingness to pay for the Transportation Hub

The transport operators of the Sarkhej give their suggestive opinion about paying for the Transportation Hub facility. The 98% of the transport operator give positive approach to pay for the same facility. They are agreeing to pay rupees for the operation of the facility. Remaining 2% of the transport are not agree to pay.

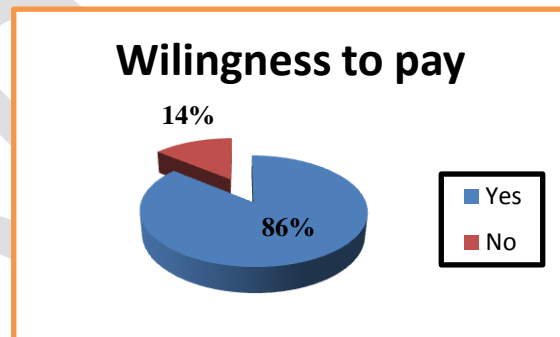


Table 7: Transporter's willingness for paid parking

i) Facility Required to the Transport Operator

The 99% of Interviewed Company they security, Medical, rest house, restaurant, repairs-maintenance at priority base. The other facility required by transport operator are weighing platform, banking, loading-unloading platform, and diesel pump is near about 85%. The recreation, telephone and manpower facility required by transport operators is near about 60%.

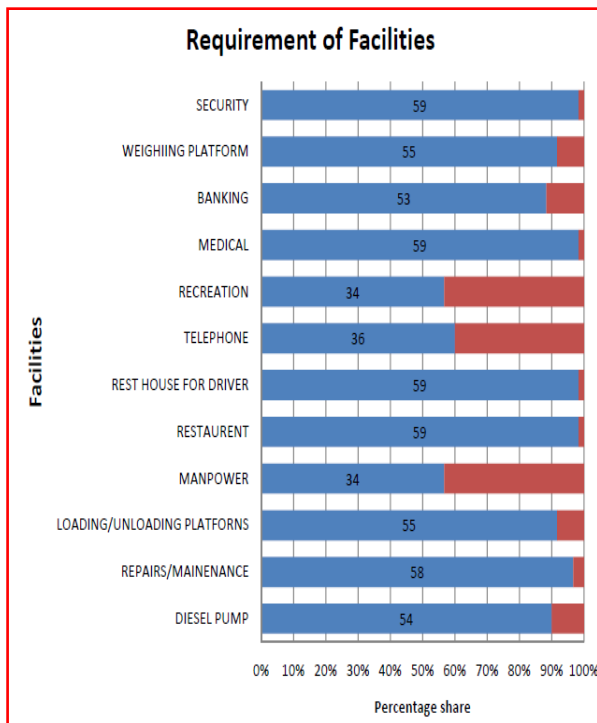


Table 8: Requirements of Facilities

VI. CONCLUSION

1. The truck transportation in sarkhej area is very much developed with more critical problems. The transportation operator operates goods transportation activity since many years and they developed wild field of truck transport activity in this area. They have no specialized functional area like others state of India e.g. Maharastra, Punjab, Delhi, u.p. the problems of traffic congestion & disturb to the through traffic of Ahmedabad to saurashtra & Kutch region. The reason of congestion due to encroachment by truck parking on road. The parking problems of trucks due to lack of a parking facility in sarkhej area.
2. After concluding a detailed study of existing goods transport company profile, Truck Halt Volume count Survey, Truck operator / truck driver's interview survey: studying the future growth programme of truck industry and other developed industries: analysis the trends and simulating a detailed demand assessment, we are suggesting & the opinion that a transportation hub is necessary requirement in sarkhej domestic level.
3. However, the estimated cost of transportation hub is higher, in case if there is a notably high industrial growth, coupled with government subsidy through low interest loans and other required support, this suggestive transportation hub could be made viable for creating a social infrastructure and supporting the traffic and industrial needs of the sarkhej area.

VII. Remedy- Proposed Layout of Transportation hub

1. Planning layout is the basic plan for the transportation hub development. The layout represents the estimated area accordingly demand in future coming years. To planning layout we use the best case for suggested transportation hub in Sarkhej area. The layout transportation hub is design from the guideline of S.E.Z principle. It includes various area requirements for transportation activity zone. The location of suggested transportation hub in Sarkhej area near to Sardar Patel ring road is decided from the interview survey of transport operators & truck drivers

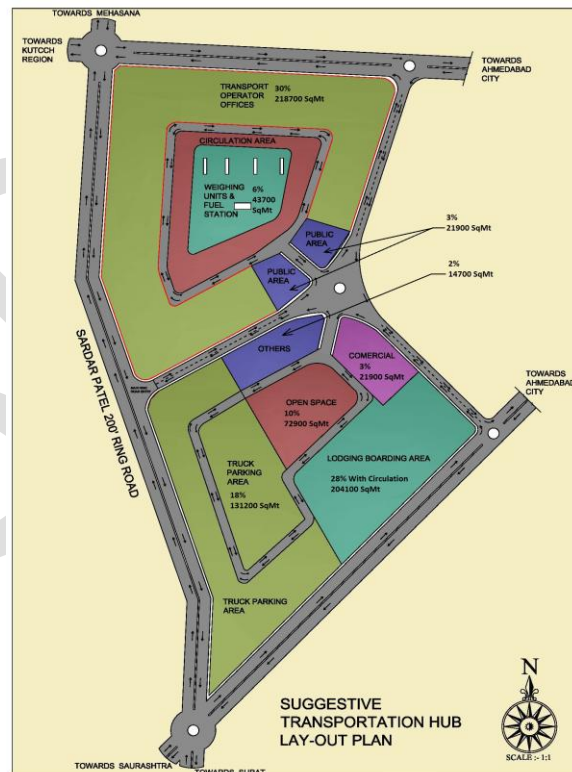


Fig.4 Lay out Proposed transportation hub



Fig.5 Actual condition at Sarkhej**Fig.6 Proposed Model**

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