

A Study of Transit Oriented Development

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ABSTRACT

The paper lays the groundwork for using transit-oriented development (TOD) as a planning technique to relieve congestion in Indian metropolises. As in any metropolis, traffic congestion is a major issue in Mumbai, the capital of Maharashtra, India. To alleviate the growing traffic congestion, the Mumbai Metropolitan Region Development Authority (MMRDA) is putting in place a Metro and Monorail system along the region's congested corridors. One of the main problems the authority has had to cope with is how to finance these initiatives. Once completed, the large-scale projects have an impact on the city's current layout. Squatter development, encroachment, and densification become issues in station areas. Regardless of the differences in the nature of the two issues, a solution must be found.

Keywords

Index Terms: Financial Modelling, Landuse Mix, Mass Rapid Transit Corridors, and Transit Oriented Development.

I. INTRODUCTION

The rate of urbanisation has accelerated dramatically during the past few decades. Cities are expanding outside of municipal boundaries at a rapid rate in terms of both size and population. Cities are currently being created out of ever-more-towns. More over half of the world's people reside in urban areas. The tendency of urbanization is widespread, but it is increasingly pronounced in Asia. India's urbanisation issue is made worse by the concentration of economic opportunities in a small number of cities. As a result, there is an issue with extremely high concentration, which leads to the growth of very big cities. One such sustainable development method is transit-oriented development (TOD), which prioritises construction near and around transit lines to boost transit ridership.

NEED TO STUDY BUS RAPID TRANSIT SYSTEM

Mumbai, the nation's financial centre, is a very crowded metropolis in the state of

Maharashtra. Traffic congestion is one of its main issues. The Mumbai Metropolitan Region Development Authority (MMRDA) is putting in place Metro and Monorail systems throughout the congested corridors of Mumbai Region in order to reduce private ownership in the area and to augment various Mass Transit efforts. Such massive transit project implementations demand significant financial support. When these large-scale improvements are finished, the current municipal infrastructure will be affected. The existing grid of Mumbai's transport system, which is primarily made up of buses, trains, and cabs, will be affected by any additions. This alteration in the riding pattern would likewise be felt.

IMPLEMENTATION OF TOD

Walkable neighborhoods and distinctive, lovely communities with a strong sense of place are produced by transit-oriented development. It offers a variety of transport options and promotes the usage of public transport. It supports mixed land use. It Create a variety of housing alternatives and choices while strengthening and directing development towards existing communities. The promotion of TOD for sustainable development takes many different forms. By offering an alternate mode of transportation, TOD primarily minimizes the use of automobiles. Second, by promoting alternatives to driving and improving accessibility for non-motorized traffic, land use planning and urban design also help to lower obesity rates and other detrimental health effects. The accessibility of the economically weaker portion, or the poor, is improved by concentrating jobs and other activity around transit.

TOD AS A FINANCIAL MODEL

One or more sets of equations make up a financial model, which is a mathematical representation of important operational and financial relationships. Before committing any funds, it is utilized in the analysis of a company's response to various economic conditions and the estimation of the outcome of financial decisions. Currently, with the government investing in large-

scale projects for the Mass Rapid Transit System; Understanding the project's viability in advance becomes essential. In order to carry out this study, a number of social, economic, and environmental factors need to be looked at. Involving TOD as a Monetary Model is one of the viewpoint in which the public authority can come to a very much educated conclusion about fostering a region. Travel Situated Improvement can likewise assist the public authority with creating income which can be utilized for spreading out new foundation offices for a huge scope to support the general public. Transit-oriented development has already been implemented in a number of Indian cities, including Delhi, Lucknow, and Ahmadabad. This idea is also being considered by MMRDA for Mumbai's metro and monorail corridors.

II. CASE STUDY

There have been numerous examples of using investment in public transportation as a catalyst for urban growth. One such technique is TOD. The name given to situations in which land use planning and investment in transit have been combined to increase transit ridership. The main objective of TOD isn't travel ridership; Through TOD investment, it is also possible to reduce vehicle miles traveled by encouraging walking, biking, and public transportation, as well as to improve accessibility by adding more activities close to public transportation. Although there are a number of different definitions of TOD, the core concept is the same: integrating land use planning and transit. The City of San Diego, perhaps of the quickest developing metropolitan region in California, has embraced Plan Rules for TOD as a critical part in their Property Direction and Metropolitan Structure programs. The city is utilizing TODs to support the trolley and bus transit system, encourage infill and redevelopment, reduce urban sprawl, and efficiently plan the urbanized area. The guidelines aim to promote patterns of infill, redevelopment, and transit integration. An Implementation Strategy for fully incorporating the design guidelines' guiding principles and specific recommendations into citywide zoning, street standard, and other policies is included in the work. The guidelines' preparation and adoption process was inclusive and very successful. A board was designated which surveyed every rule and changed it likewise. Then, these guidelines were used to design the future development and redevelopment of an industrial zone, a shopping mall, and an existing suburban station area. In the end, as depicted in Figure 1, city staff presented the concepts, guidelines, and illustrations to each

neighborhood group and community planning board in the city. People were able to comprehend the proposed changes thanks to this thorough input and education process, which was successful in both tailoring the guidelines to San Diego's distinctive characteristics and [6]. TOD was developed by Calthorpe to address community ecology. TOD was regarded as a straightforward solution to Regional Growth in Western nations [7]. Additionally, it provided alternative revenue sources for transit agencies. While TOD is used to densify specific areas in Western nations, India's cities already have higher densities. As a result, TOD in Indian cities ought to be viewed as a tool for raising both the financial means to provide infrastructure facilities and enhancing quality of life. India, on the other hand, is working toward meeting the TOD guidelines and creating a sustainable and pedestrian-friendly city for its people.

III. CONCLUSION AND FUTURE SCOPE OF STUDY

Due to its dense population, India can primarily benefit from transit-oriented development to address issues of encroachment, environmental degradation, densification, and congestion in its major cities. The rapid pace of urbanization in Indian cities has led to serious issues like urban poverty, environmental degradation, traffic congestion, and others. These issues must be resolved in order for a city to grow sustainably. One approach that is discussed in the article is a transit-oriented development, which combines land use with transit systems to maximize access to public transportation and address environmental, social, and economic issues at the same time. The issues of supporting huge scope foundation ventures can be overwhelmed by involving TOD as a Monetary Model. The developed Financial Model can be used to determine whether Transit Oriented Development Schemes around MRTS Stations are feasible.

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