International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 01 | Jan 2020 www.irjet.net p-ISSN: 2395-0072

Approach for a Transit Oriented Development in Chhattisgarh

Tripti Rani Sahu[1], ShubhamYadav[2], SonamVaidya[3]

Swami Vivekanand Technical University, Bhilai (C.G.)
Assistant Professor at CSVTU (Bhilai, C.G.)

Abstract – *In this paper, we studied about Transit Oriented Development (TOD) program. TOD planning should have two-sided approach: TOD Retrofitting-Bringing transit to those locations, where the development already possesses the physical characteristics of a typical TOD, i.e. having high densities but without having transit connectivity at that place.*

TOD Planning-This approach ensures that necessary planning policies and regulations in master plan and land use plan TOD implementation. This paper aims to review TOD Retrofitting.

Key Words: TOD-Transit Oriented Development, BRTS-Bus Rapid Transit System, NMT- Non Motorized Transport, MRT-Mass Rapid Transit, ROW-Right-of-way.

1. INTRODUCTION

There are different Definitions of TOD Which lies within the Concept of latest urbanization. New urbanize theory suggests that compact, mixed land use are the solution to the suburban problem. Several Academics have adopted their own explanations of TOD. One among the first and popular definitions of the Transit-Oriented Concept came from Peter Calthorpe. Calthorpe TODs are: Mixed-use communist within a mean 2,000-foot walking distance from a transit stop.

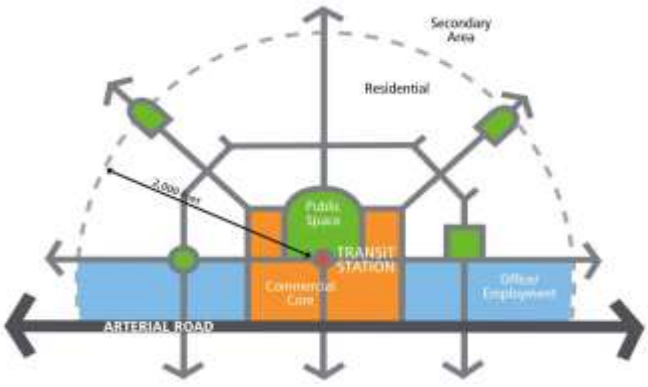

Figure 1: Transit -Oriented Development as explained by Calthorpe

Mix residential, retail, office, open space, and public uses during a walk able space, making TOD convenient for residents and employees to travel by transit, bicycle, foot or car. Additionally, the transportation hub should be located within the middle of the neighborhood, within a 400 m, or 10 min. walk from residents. This middle location reflects the importance of transit within the community and within the region.

TOD contains a mixture of economic, residential, and institutional developments built to support a transportation hub and to offer support to NMT vehicle mobility options, like biking and walking.

A TOD zone could encompass a radius of as little as 400m or the maximum amount as 2000 m from a transit station.

A TOD includes a central transit stop surrounded by a high-density, mixed-use area, with lower-density areas. A TOD is additionally designed to be more walk able than other built-up areas, through using smaller plot sizes and reducing the acreage.

1.1 Benefits of TOD

The benefits of TOD have been extensively written about by planners worldwide. The pursuit of sustainability includes a good range of policy goals that address environmental, equity, and economic conditions. The transportation sector is frequently seen as a place for helping regions meet their sustainability goals because of its relationship to global warming, air pollution, employment access, and household costs. To address heating and pollution especially, policy makers use a three-pronged approach, with the primary two prongs that specialize in improving fuel efficiency and vehicle efficiency to deal with transportation's role in increased emissions and travel.

The third prong, the built environment, has been linked by numerous studies to vehicle miles travelled and greenhouse gas emissions. Through this lens, one among the best benefits of transit oriented development is reduced greenhouse gas emissions. This is a results of less cars on the road, which leads also to the advantage of less pollution and smog. With a reduced number of cars on the road, a wave of other benefits emerges including reduced transportation costs for people and families, expanded mobility choices, and increased Transit ridership that successively increases revenue for the town .

1.2 Challenges of TOD

One of the most important challenges is that the regulatory framework of most municipalities isn't supportive of TOD. It is common for cities to possess zoning ordinances and exploitation codes designed for automobile-oriented, single-purpose, suburban-scale

development. The physical requirements of zoning ordinances often prohibit the event density necessary for TOD, through such provisions as maximums on floor area ratio, height limitations, and mini. Front setback of buildings, landscaping requirements, lot coverage maximums, and mini. Parking requirements.

Growth of Transport System in India

S.No.	Transport System	Unit of Measurement	1950-51	1970-71	2000-01
(1)	(2)	(3)	(4)	(5)	(6)
1.	Railway Transport	(i) Route length (Km)	53,600	59,800	62,900
		(ii) Freight Traffic originating (million tonnes)	93	196	492
2.	Road Transport	(i) Road length ('000 km.)	400	915	3420*
		(ii) No. of goods vehicels ('000)	82	343	2680**
3.	Shipping	Overseas shipping (million tonnes (GRT)	0.2	2.2	7.0
4.	Civil Aviation	No. of passangers (lakhs)		26	87***

Table -1: Growth of transport System in India

Figure 2: Delhi Metro & BRTS Transit Corridors

2. TOD in Chhattisgarh

We were commissioned by Naya Raipur Development Authority to develop detailed master plans for 3 new residential sectors with a complete area of 800 acres. These form the primary arrival point from the airport towards the town , with a BRT route running along them, creating a chance to develop a transit oriented high density mixed use development (TOD) along the rapid bus stops. variety of existing natural features on site are retained and therefore the plan may be a mixture of a high density development serving the BRT route with variety of mixed use functions, pedestrian routes and activities, with a mid to lower density of residential uses at the northern and eastern edges.

There is an existing village which has been well integrated with the proposed development in terms of the movement network and therefore the sharing of amenities. An iconic gateway, which forms the doorway to the town, comprises a series of steel spheres woven with silk placed over a green landscaped podium. A pedestrian boulevard originates from the gateway and connects the prominent open spaces and natural features also because the amenities for all the sectors. The Pedestrian Boulevard ends at the 'visual corridor', a city level promenade that links visually and physically to the Capitol. The sectors are master planned to be completely pedestrian and cycle friendly.

Figure 3: Naya Raipur

3. CONCLUSION

All effects of those situations; like traffic jam, affordable housing shortages and pollution. From now of view, TOD has become one among the foremost popular tools for achieving Smart Growth and Sustainable Development principles. Also, most of the people make the error of thinking that TOD are often created through the planning and development of 1 project, but really , it always takes multiple projects working together to make an urban fabric that seamlessly blends the ideals of trend. TOD are often conserved as an approach which will actualize a moderate to higher density development, located within a simple walk of a serious transit stop, generally with a mixture of residential, employment, and shopping opportunities designed for pedestrians without excluding the auto. However, number of variables determines the success of TOD through; social and economic market demands, government policies, strong and proactive institutions, individual political champion, supportive neighborhoods and communities, top quality transit service, availability of attractive developable land, strong land markets and parking management. Also, TOD needs technical and style strategies to be followed.

REFERENCES

1. Transportation Research Part D: Transport and Environment, 2009. 14(1): p. 67-71.

2. Newman, P. and J. Ken worthy, Sustainability and Cities: Overcoming automobile dependence. 1999: Island Press.

3. CEPT, Detailed Project Report Phase-1. 2005, Centre for Environmental Planning & Technology University.

4. Jacobson, J. and A. Forsyth, Seven American TODs: Good Practices for Urban Design in Transit-Oriented Development Projects. 2008.

5. Transport, M.o.U. National urban transport policy.

6. Badami, M.G., G. Tiwari, and D. Mohan. Access and mobility for the urban poor in India: bridging the gap between policy and wishes. In Infrastructure and Public Service Delivery for the Urban Poor. 2004. Delhi, India: National Institute of Urban Affairs.

7. Ballaney, S. and B. Patel Using the 'Development Plan—Town Planning Scheme' Mechanism to Appropriate Land and Build Urban Infrastructure.

9. Gurumukhi, K.T., Land Pooling Technique: A tool for plan implementation - An Indian experience. 2003. 12. Tanguay, G.A., et al., Measuring the sustainability of cities: An analysis of the utilization of local indicators. Ecological Indicators. 10(2): p. 407-418.

10. Adams, W.M., the longer term of sustainability - Rethinking environment and development within the twenty-first century. Report of the IUCN Renowned Thinkers Meeting, 2006.