ISSN: 2455 – 4200
International Journal of Engineering Research and Modern Education
Impact Factor 6.525, Special Issue, April - 2017
6th National Conference on Innovative Practices in Construction and Waste Management
On 25th April 2017 Organized By
Department of Civil Engineering, Sri Ramakrishna Institute of Technology, Coimbatore, Tamilnadu

PLANNING AND DESIGN OF URBAN STREET – COIMBATORE CITY

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Cite This Article: R. Shanmuga Priyan, M. K. Muthu Kalidas, A. Rajalakshmi S. Sangeetha & S. Subhadharshini, "Planning and Design of Urban Street - Coimbatore City", International Journal of Engineering Research and Modern Education, Special Issue, April, Page Number 127-130, 2017.

Abstract:

Street are the life blood of our communities and the foundation of our urban economics. They make up more than 80 percent of all public space in cities and have the potential to raise business activity, serve as a front yard for resident and provide safe place for people to get around, whether on foot, bicycle, car or transit. The vitality of urban life demands a design approach sensitive to the multi – faceted role of street play in our cities. The studied aim is to plan and design an ideal street for the selected locations in the Coimbatore city, as well-designed street generates higher revenues for business and higher values for homeowners. On the selected location of Coimbatore city, reconnaissance survey was conducted to study the existing characteristics in terms of its land use and transportation context to identify the deficiencies on the selected urban streets. Finally, as per the design standards and guidelines framed by the development authority, urban streets were planned in such a way to meet out the public demand.

Key Words: Urban Street, Junction, Deficiencies & Street Typology

1. Introduction:

The term urban simply referred to the region or area. It is densely populated and possess the characteristics of the man-made surrounding. The people residing in such area are engaged in trade, commerce and services. In this settlement, there is high scale industrialization that result in better employment opportunities. The urban settlement is not confined to the cities only, but towns and suburbs are also included in it. Urban streets are considered as a resources that is accessible to all member of society and can be used publically. Urban areas are characterized by having large population density and vast human features compared to the surrounding areas. Cities, towns are commonly referred as urban area. It must also have ongoing urbanization for further development. Metropolitan cities, which includes satellite cities are also considered as urban places. It concerns large settlement forcing inhabitant to congregate in large urban area and in turn enforcing need of urban transportation. It develops efficient street transportation to serve effective various land use in an urban area. Well-designed streets are a critical element of a safe and efficient mobility system. At present, poor design and management of streets in Coimbatore city is contributing to increased Congestion, pollution, road safety risks, and maintenance requirements. Going forward, CCMC seeks to establish a network of streets that offer convenience and safety to all users. It will implement streets with high quality walking and cycling facilities, improved access to public transport, organised parking, and streamlined junctions. A key aim is to ensure equitable allocation of road space to walking and cycling - collectively known as "non-motorised transport". It provides basic mobility and affordable transport, and bring significant health and recreation benefits. It also reduces the demand for travel by motorised vehicles and associated issues such as pollution and safety. Street typology is designed considering the existing land use and traffic pattern and the functions of the streets that evolved over the past years. The principle factors to be considered in street typology on designating roads into appropriate classifications are mobility activities and parking requirements. This typology defines the street with specific usage and purpose.

2. Case Study Profile:

Coimbatore, popularly known as Manchester of South India, is situated in the western part of the state of Tamil Nadu Covering an extent of 3,670 sq.km and an area of 1,052 sq. km. as Reserve Forest. The Coimbatore Corporation Area as indicated in Coimbatore master plan is 105.60 sq.km of which approximately 76 percent of land is put to development use, 23% of the land is still being put to agricultural use, water bodies, vacant areas and heritage areas.in the developmental land use 80% is put to residential use. Four locations are selected for designing purposes which falls under the urban limits of the city. They are,

- ✓ Ukkadam Junction
- ✓ Town Hall Junction
- ✓ Gandhipuram Junction
- ✓ Peelamedu Junction

3. Identified Deficiencies:

Once the land use and transportation context of the selected locations are defined, one should be able to identify and describe any deficiencies prevailing in those locations. Now a days Coimbatore local planning area is throbbing with activities pertaining to industries, trade, commerce and education. The street network is neither functioning which is developed as a system nor adequate in width to carry the increasing traffic flow.

Ukkadam Junction: Ukkadam junction has an integrated local bus terminal, and makes for a total site area of 11,452 sq. m. The junction is surrounded by a TNSTC depot, a natural lake named Periyakulam, a police station which opposite to the fruits market, and a multilevel housing complex on one edge adjacent to an old book market. Parking is largely unplanned, and unregulated due

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to encroachment of auto rickshaws along one side of the carriageway. Congestion is also occurring due to improper Loading and unloading of passengers on and along the traffic lane by the bus operators.

Town Hall Junction: Town hall is one of the major junction in the city of Coimbatore for bus commuters. The land use context of this junction is highly occupied by numerous commercial sector. It was well connected by workshop places such as temple, churches etc., and the main composition of land use is constituted by public work department office and governmental institutions such as government arts college for women. Improper pedestrian movement across the road network. Improper use of traffic lanes by buses, two wheelers and other vehicles. Occupation of footpaths with unauthorized stacking of materials.

Gandhipuram Junction: Gandhipuram is a commercial neighbourhood and heart of the city of Coimbatore. It is situated in the middle of the city and the place is an important centre for shopping and entertainment, and also a major hub for the intra-city bus service. The traffic composition across mid blocks reveal a high two wheeler percentage at around 40%, followed by cars and three-wheelers and buses. The study estimates the total walk trips of pedestrian at around 14%. To ease the traffic congestion, a two-tier flyover is constructed. Footpaths were found to be encroached at and around commercial areas with hawkers and parked vehicles. Bus Terminal locations at Gandhipuram are not adequately geared to handle the traffic volumes and interchange trips, leading to congestion in the Central Business District area.

Peelamedu Junction: Peelamedu is a suburb of the city of Coimbatore. It is a major commercial centre, and one of the oldest residential parts of the city. The growth of Peelamedu during the last decade can be cited due to the growth of the IT and educational sectors in Coimbatore. The rapid growth of Peelamedu as a commercial and residential hub could be attributed to its geographical advantage in terms of the connectivity to other parts of the city. It is the educational hub of Coimbatore with renowned Medical, Paramedical, Engineering, Arts & Science colleges and many famous schools situated there.

4. Recommended Street Typology:

In the interest of efficient road transportation, which effectively serves the various land uses in an urban area and at the same time ensures logical community development, it is desirable to establish network of roads divided into different classifications, each system serving a particular function or purpose. The principle factors to be considered in designating roads are mobility, activities and parking requirements. The proposed typology of road is designed considering the existing traffic pattern and the functions of the streets that evolved over the past years and it is merely based on Right of Way(ROW).

Ukkadam Junction: The recommended ROW in existing urban area is 18-24 m in the proposed urban extension. Hence it falls under the category of secondary Collector arterial road. These roads are intended to collect traffic from local streets.

Townhall Junction: The recommended ROW in existing urban area 18-24 m in the proposed urban extension. Hence it falls under the category of Secondary Collector arterial road.

Gandhipuram Junction: The recommended ROW in existing urban area is 30-40 m in the proposed urban extension. Hence it falls under the category of primary collector arterial road. These roads will connect major arterial roads and inter residential district collectors.

Peelamedu Junction: The recommended ROW in existing urban area is 18-24 m in the proposed urban extension. Hence it falls under the category of Secondary Collector arterial road. These roads are intended to collect traffic from local streets.

Comparison of Existing Street with Recommended Design: By the objectives of our project, an ideal urban street was planned and design was recommended for the selected four locations in the Coimbatore city. The recommended urban street typologies are proposed to the four locations of the city with reference to the guidelines formed by the UTTIPEC (Delhi Development Authority). Based on the identified deficiencies along the streets of the selected locations in reference to both the land use and transportation context, street typology is planned and designed for these four locations. The following are the comparison of both the existing and recommended design of urban street typology.

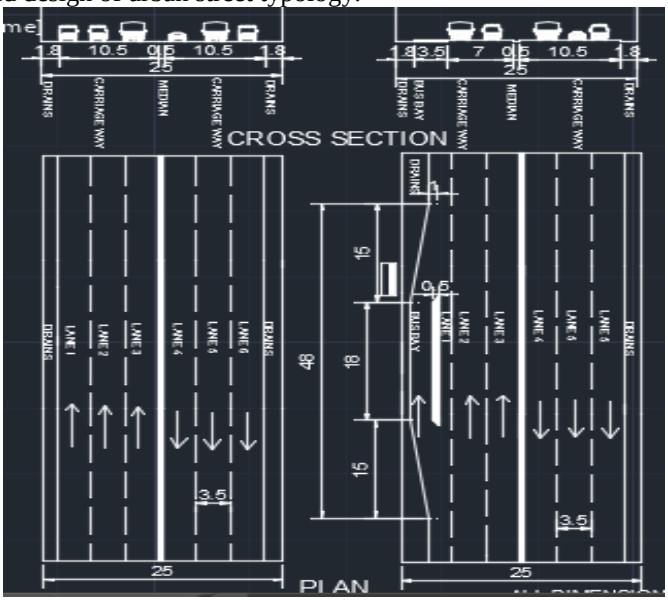

Figure 1.1: Comparison of Existing Street with Recommended Design at Ukkadam Junction

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From the earlier observed at the ukkadam junction, a bus bay was provided to improve the efficiency of public transport and to provide safety for the passenger for boarding and un boarding at the junction.

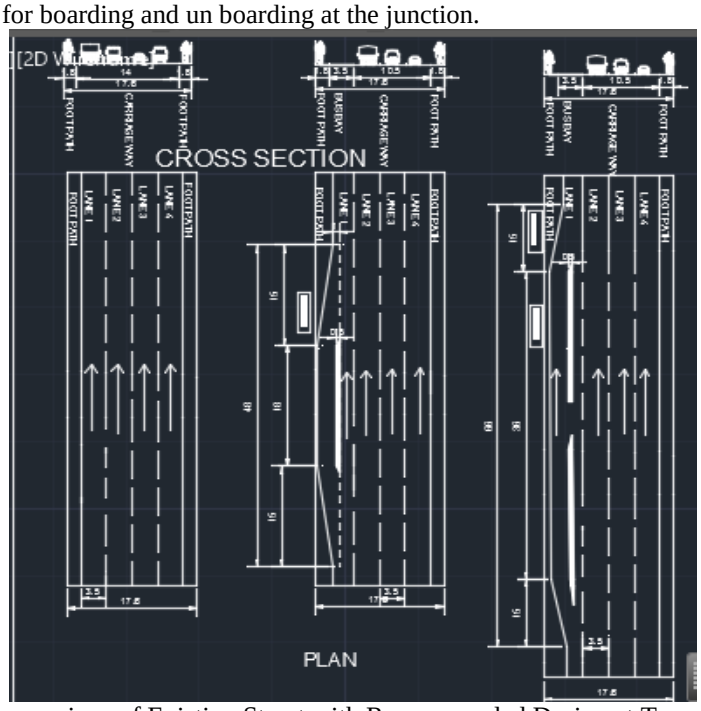

Figure 1.2: Comparison of Existing Street with Recommended Design at Town hall Junction

To ensure the safety pedestrian and vehicular movement, single and double bus bay was designed in the Town hall junction for the betterment of traffic flow.

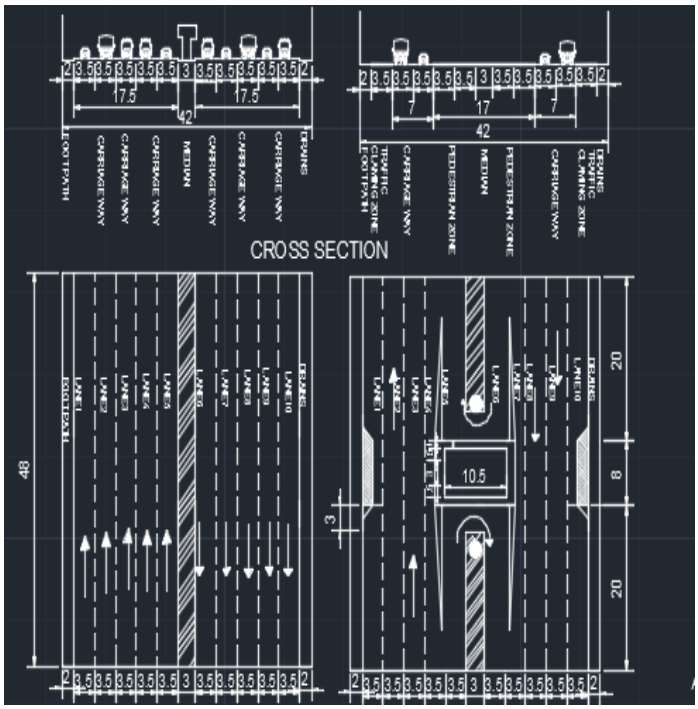

Figure 1.3: Comparison of Existing Street with Recommended Design at Gandhipuram Junction

Traffic calming zone and pedestrian crossing zone are the two important parameters are provided at the gandhipuram junction. Traffic calming zone provided along the road for the pick- up and dropping of passenger, parking of private vehicle, auto rickshaw, etc., the foremost consideration in the development of the urban street at the gandhipuram is to provide easy accessibility and safety for pedestrians.

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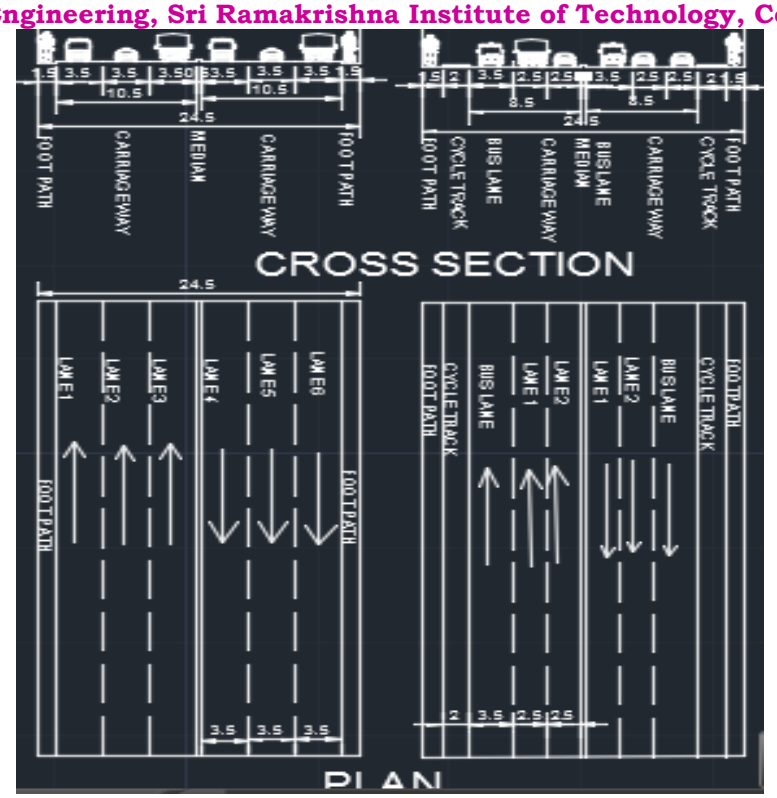

Figure 1.4: Comparison of Existing Street with Recommended Design at Peelamedu Junction

To overcome the identified deficiencies, the street typology for secondary collector road as suggested in UTTIPEC is recommended for this junction. In addition to this a dedicated bus lane (BRT LANE) and a separate cycle track has been provided to regulate the vehicular movement.

5. Conclusion:

One of the important vision of the government of India through the national urban transport policy is to recognize that people occupy centre stage in our cities and to make our cities to evolve into an urban form that is best suited for the unique geography of their location and also to support the major social and economic activities that take place in the city. As the city streets are valuable public spaces as well as movement corridors, the urban street typologies are planned and recommended to the case study locations in the city. From the various collected secondary data and the reconnaissance survey along the selected locations, the deficiencies are identified in relation to both the land use and transportation context. As suggested in the UTTIPEC guidelines for design of urban streets, few mandatory components of urban streets such as bus bay, pedestrian crossing zones, traffic calming zones, cycling tracks, crossings, and other needed urban utilities are studied and incorporated into our four case study locations. As per the design standards framed by the various development authorities, the streets are designed to meet the growing demand of the city.

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