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To Provide Planning Proposal for Habitable Street: A Case Study of Dandi Road, Surat City

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Abstract - *Streets make up the majority of a city's public spaces, and they play a vital role in city and town life. Streets should be designed to serve as both public spaces and transportation corridors. In order to promote urban life, street design weaves together numerous threads of public-making, environmental stewardship, social equality, and economic viability. Street design and layout determine how people experience the natural environment, as well as the distinct characteristics and quirks of a specific location. The study aims to design complete streets that can accommodate a wide spectrum of people. It handles a variety of street features that are necessary to improve the quality of urban environments and the character of local streets, including pedestrian-related, road-side elements, carriageways, cycling tracks, parking, and so on. This paper proposes a method for implementing a sustainable design framework for urban streets that incorporates all road users' and stakeholders' functional requirements in the street design based on each road user's priority, suitability, and need, ensuring that available road space is distributed evenly among all stakeholders.*

Key Words: Urban Design, Street-Scape, and Street-Restoration

1. INTRODUCTION

The most basic unit of urban space through which individuals experience a city is the street. Streets in India have historically served as a barrier between the private and public domains. In cities, streets account for a third or more of all land and half of all impervious surface. There are two types of streets: main streets and side streets. The majority of major thoroughfares are wide and have heavy traffic. Main streets are more visible for trade and public involvement, and cars may use them for longer-distance excursions. Side streets are quieter, offer a more residential atmosphere, and can be used for parking. A street is a transportation facility that is designed, built, operated, and maintained to ensure safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, in accordance with the facility's role and context. Streets are a huge hindrance to natural hydrology as well as a significant potential for better stormwater management. Every street has its own distinct character. Its setting, community preferences, road user kinds, and demands are all aspects to consider. While a street's efficiency is dependent on continuous and connected sidewalk clear pathways, bike lanes, and travel lanes, interchangeable components such as parking spots, trees, parklets, and transit stops allow a street to adapt to its surroundings.

1.1 Street Development

Sustainable streets are "multimodal rights of way designed and operated to create benefits related to movement, ecology, and community that together support a broad sustainability agenda embracing the three E's: environment, equity, and economy," and their implementation can help cities become more livable. Street urban planning requires the use of sustainable streetscape elements.

Local, county, state, and federal governments are increasingly considering sustainable roadways to satisfy and balance the transportation needs of growing populations. limit. The built and natural ecosystems, pedestrian and bicycle access, social stability and fairness, economic prosperity, and recreational activities all play a role in sustainable street development. Sustainable streets help communities maintain their visual image by creating a beautiful and safe urban environment. Green infrastructure helps to safeguard urban ecosystems by reducing imperviousness, treating stormwater runoff, and providing a variety of other advantages.

1.2 Advantages Street Development

Sustainable streets help society in a number of ways, including defining the aesthetic image of sustainable cities, serving as one of the most important parts of municipal success, and serving as tourist attractions.

- Among the potential benefits are improved water quality, carbon absorption, and reduced urban heat island effects, to name a few.
- Maintain social well-being through making streets safe for public strolling and meeting areas where people can regularly connect, as well as encouraging outdoor activities.
- To increase environmental quality, improve air quality, reduce heat island effects, improve water quality, and reduce light pollution.

- Reduces the usage of material resources, which helps to keep the economy afloat.
- To improve public health, stimulate and facilitate walking and other recreational activities in the community.

2. HEADING 2

"Streetscape" is a term that "describes the street's design quality and visual impression, and relates to the natural and built fabric of the street." According to the concept, a street is a public space where people can engage in a variety of activities. Streetscapes and the visual experience they provide have a tremendous impact on public spaces where people interact, and they ultimately contribute to a community's aesthetic quality, economic activity, health, and sustainability.

Pedestrians can contribute to the expansion of local economies. According to a report titled Walking the Walk, walkability can help revitalize a downtown, promote private investment, and support the formation of a favorable business climate. Pedestrian, bicycle, and transit-friendly streetscapes can be made by expanding sidewalks, creating buffers along the street, and decreasing the frequency of curb cuts.

Streetscapes can help to ensure environmental sustainability by minimizing automotive dependency, traffic and congestion, and carbon emissions.

3. Sustainable Development Components

Fig -1: Sustainable Development Components

4. Methodology

In this work first step is to identify the problem. Then framing aim and objective of the study. Next step is to study the literature review and identify the case study related to the work. Then select study area for selected stretch. Then Collect the Primary data and secondary data .After that analysis the data and provide proposal according to it. Select the Study area for riverfront development on the basis of availability on street. After that on the basis of survey and collected data the planning proposals are prepared. In planning proposal, the different infrastructure facilities are provided as per requirement on selected stretch of road. Green spaces are provided to improve the environment and condition of street. The facilities of food court and sitting areas are also provided.

5. Study Area

Surat is located in Gujarat, India's westernmost state. It is India's most dynamic city, with one of the greatest growth rates. Surat is Gujarat's commercial and economic hub, as well as one of the country's most populous cities. It has a thriving diamond and textile industry, as well as a fashion and accessory shopping mall. Merchants and traders have been drawn to Surat's seaports since ancient times.

5.1 Profile of Surat City

Surat is known as "THE SILK CITY," "THE DIAMOND CITY," "THE GREEN CITY," and "THE CITY To FLYOVERS" because of its abundance of flowers. It is the second-largest city in Gujarat, as well as India's eighth-largest city and ninth-largest urban agglomeration, after Ahmedabad. Surat would be the world's fastest growing metropolitan from 2019 to 2035, according to an Economic Times report. According to the Swachh Survekshan 2020, Surat is India's second cleanest city as of August 21, 2020. Surat is India's first smart IT city, according to the Microsoft CityNext Initiative.

Fig -2: Dandi Road in West Zone, Surat

5.2 Profile of Surat City

Surat's west zone is one of the city's quickest-growing neighborhoods. The eight wards of the west zone are Rander, Adajan, Jahangirpura, Jahangirabad, Pisad, Pal, Palanpor, and Variav. The study's chosen length, "Dandi Road," is located in Jahangirabad's west zone.

Surat has nine zones: West Zone, Central Zone, North Zone, East Zone-A, East Zone-B, South Zone-A, South Zone-B, South West Zone, and South East Zone, as well as 30 election wards: West Zone, Central Zone, North Zone, East Zone-A, East Zone-B, South Zone-B, South West Zone, and South East Zone.

Table -1: Primary Data Details

Primary Data Details	
Road Length	1.2km
Road Width	10.00km/10.35km (3-lane road)
Median	1.35m
City-Bus Station Width	2.50
Road after City-Bus	03.50

6. Literature Review

Good street design is critical to smart expansion. The intersection of land use and transportation is supposed to be represented by streets. The three major components of street design are the width of the street, the structure of the street network, and the physical items along the streetscape. Engineers who built streets in the past were primarily concerned with speed and capacity, or the ability to move as many cars as quickly as possible. Other considerations, such as the liveability of neighbourhoods in the places where the streets run, and the need of supporting varied street users, such as pedestrians, bicyclists, rollerbladers, and skateboarders, are now receiving increasing attention.

These papers provide a framework for improving the resiliency of our dynamic Chicago neighbourhoods by strengthening city streets and communities. Because the diverse design principles for moving traffic, enabling access, and providing maintainable street pavements are applicable to all streets, the rules mentioned below are also recommended for private roadways in new subdivisions. The criteria for street design attempt to represent not just traditional traffic and civil engineering approaches, but also the unique demands of a highly populated metropolitan context with limited space.

7. Case Studies

7.1 Profile of Surat City

- An investigation on the peculiarities of Kristianstad street was conducted in order to improve street life in Sweden.
- The research covers topics such as traffic calming, shared space, living street, livable street, and complete street.
- The location and role of comparable streets in the broader transportation network, the characteristics of these streets and nearby buildings, and the links between physical conditions and perceived social life are all important factors to consider when increasing street life.

7.2 African Cities Guidelines

- The project's purpose is to develop more walkable neighbourhoods with integrated walking and cycling facilities.
- African cities have introduced modern modes of public transportation, such as bus rapid transit, and improved road design, providing safe and convenient pedestrian crossings, and separating high-speed vehicles to make cycling and walking, the most popular modes of transportation, safer and more appealing.
- They've put in place non-motorized transportation regulations that require a safe, comfortable, and convenient environment for pedestrians, cyclists, bicycle taxis, and other modes of active transportation.

8. Planning Proposal

In the planning proposal, basic amenities such as a cycle track, a pedestrian area, parking facilities, shops, a food court, photographic points section by section, and an autocade plan were included to give the public a clearer picture of future street development.

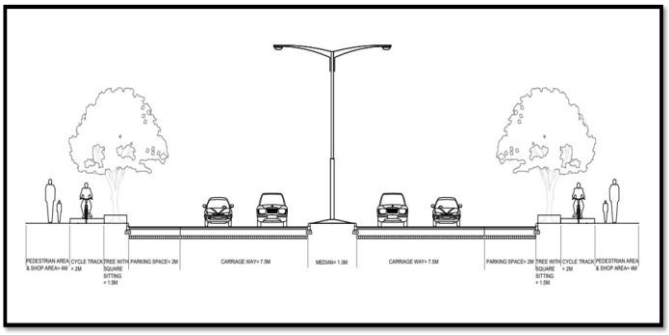

Fig -3: Cross Section of Road

The authors can acknowledge any person/authorities in this section. This is not mandatory.

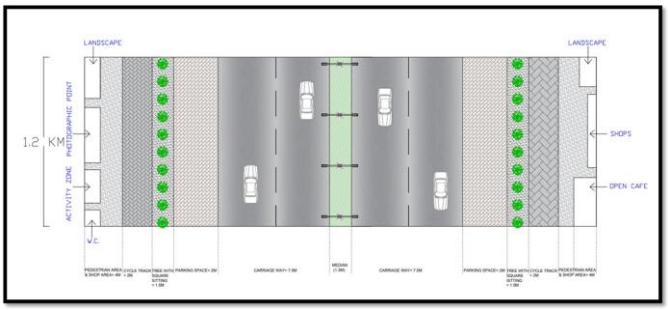

Fig -4: Top View of Selected Street Area

8. Conclusion

It is evident from the above evolved method that the integrated approach towards street planning adopted will help to achieve the complete streets. The data collected and evaluated revealed detailed picture of the present street conditions. The data collected under various heads will be used to get detailed analysis and correlation of built environment and street design elements to achieve complete streets as a whole through proper planning, and designing, using required elements of design be it a street or built environment. The quantitative evaluation of the streets will help to have clear understanding of the each and every parameter that needs improvement or design intervention to achieve complete streets. The evaluated results will help in standardization of street designs ensuring the safety and accessibility of streets. It will increase the mobility choices among street users and will enhance the urban design qualities of along the street. This will provide the city to have well-planned, well-designed and well-connected transportation network for all types of users.

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