Utilizing The Leftover Spaces under Flyover in Surat City

[1]Sharukh Marfani [2]Patel Smit [3]Rana Nirav [4]Patel Savan
[1]Assistant Professor [2,3,4]Student
[1,2,3,4]Department of Civil Engineering
[1,2,3,4]R.N.G.P.I.T, Bardoli

Abstract

The population of urban area is continuously increasing nowadays. It tends to decrease the public spaces in highly populated area. There are many spaces in urban area which can be converted into different uses like urban voids i.e. leftover spaces, negative spaces etc. have huge potentials to turn the spaces into well planned, designed most effective public spaces. Filling the urban voids such as spaces below flyover gives city a new look and life, it can be possible to convert leftover spaces like edge spaces, in between spaces, below flyover spaces etc. into spaces that are beneficial to public and community. The paper will be focused on the concept of urban voids, identifying and analyzing the types of voids also filling these voids in order to create healthy, enjoyable public spaces by studying the case studies of western and European countries.
Keyword- Urban Voids, Spaces below Flyover, Left Over Spaces Utilization, Public Spaces

---

I. INTRODUCTION

About 50% of world's population are living in the urban areas at present. It has been estimated that this will rise up to the 70%. Many cities across the world are struggling to cope with pressure of rapidly growing population and lack of spaces available. These crowded cities deals with limited urban space and resource and to increase public space is very difficult and complicated. The unintentionally resulted unusable spaces are known as dead or negative spaces.. Spaces have been the fundamental for improving the quality of the city around us and prime importance in our lives. Urban voids are spaces which are often neglected or forgotten space in the eyes of the people. Mostly these are resulted by treating planning sites in isolation and from poor designing or spaces left under the structure. Urban voids are also caused due to inefficient decision making, poor land management, poor co-ordination etc. among decision makers and designers.

A. Categories of Urban Voids

1) Planning Voids

These are the voids created due to improper and insufficient planning processes. Also created from planning in isolation without understanding the fabric or structure of the city. Generally these are most visible in our cities. These voids can also be perceived using figure ground theory.

Figure ground theory is the 2-D map of the urban space that shows relationship between built and unbuilt spaces which is used in planning and designing of urban area.

2) Functional Voids

The dead vacant spaces in cities are called functional voids. The spaces becomes defunct or inactive when spaces are not used like it was designed and occupies precious land in cities and make environment unpleasant.

3) Geographical Voids

These voids are the existing geographical features or structures in cities. Voids are created around these makes the space unusable like rives etc.

B. Four Main Types of Voids

1) Edge and Buffer Voids

These are results of indefinite spaces caused by actions. These leftover spaces creating dead edges and wasted potential sidewalks. Types: setback, between spaces, residual spaces, marginal spaces etc.

All rights reserved by *www.grdjournals.com*

2) Infrastructural Voids
These are results of dead spaces in and around public infrastructure. The main issues are wastage of usable space, and becomes a gap within its context.

3) Transportation Voids
These are results when the streets supersized than requirement and improper distribution of space. E.g. over sized streets, over supplied streets.
The main issues arises are it takes large amount of space, unsafe for pedestrians and perception of the city is lost.

4) Large Scale Plots
These spaces create huge voids in city and the spaces are designed for cars not for people. E.g. Parking lots, unused lands and abandoned space etc.

C. Aim of Study
Aim of this project is to effectively occupy the unused spaces below flyover.

D. Objectives
1) Identifying flyover spaces for adaptive use.
2) To develop recreational plan for effective utilization of space below flyover.

E. Scope
To create effective public spaces from unused spaces.

II. STUDY AREA

Information about Surat city: Surat is a city located on the western part of India in the state of Gujarat. It is one of the most dynamic city of India with one of the fastest growth rate due to immigration from various part of Gujarat and other state of India. Surat is one of the cleanest city of India and it has been ranked as the second cleanest city in India. It is also known as “SILK CITY”, “THE DIAMOND CITY”, “THE GREEN CITY”, etc. According to census data the population of Surat is about 44, 66,826. And having population density of 13680 persons/Sq.Km as per census-2011.The area of Surat is 326.515 Sq. Km. with 7 zones as per SMC data.

- Site Selection

After visiting the various sites in surat city. We select a site among many which have more potential to make city more attractive and which can be effectively used for public spaces to give an extra progress in development of our city. Among various voids infrastructural voids has been selected as a study area.
The site selected for our study area is:
Utran to Amroli Bridge, Manisagar Garnada: This flyover is located near Utran rail link road. The bridge is surrounded by few apartment. The site map is given in below fig.

Fig. 1: Site of Utran to Amroli Flyover

All rights reserved by *www.grdjournals.com*

III. METHODOLOGY

The figure below shows the sequence of the methodology of the work plan to be executed for the project.

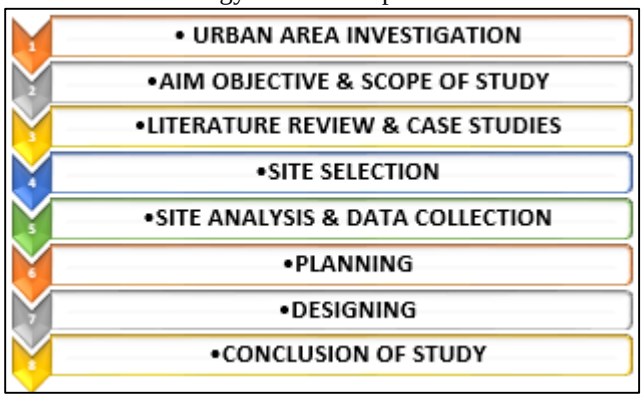

Fig. 2: sequence of the methodology

IV. DATA COLLECTION

Data collection from selected site has been mentioned below:
The total length of the bridge is 1258.52 m.
Width of bridge is 15 m.
There are total 27 spans.
Each span is of 30m excluding the span which is above rail link.
Span above rail link is of 49m.

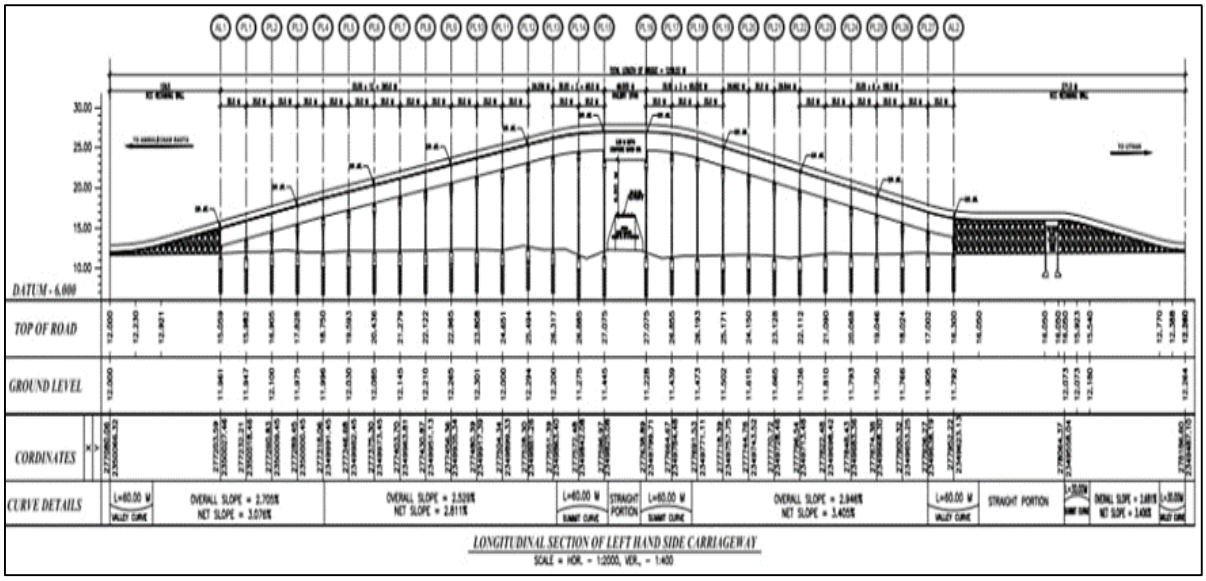

Fig. 3: Sideview of Utran to Amroli Flyover

V. AREA UTILISATION

We have span size of 30 m below bridge. We can utilize the space for many things like gardens, resting place, game zones, markets, parking etc.
We have selected 2 major spans of 30 m for development purpose. We have utilized the area for game zone and theatre with parking spaces.
For that we carried out the space required to provide game zone and theatre.
The details we carried out are given below:

- Game Zone: For game zone we required a room size of 25m x 18m.

1) Pool Table: general size of pool table is 2.4m x 1.07m. Space required for players and passage is 1.2m x 1.3m for each side. Thus the total size required for pool table is 5.68 m x 2 = 11.376 m^2
2) Table Tennis: General size of table tennis is 2.74m x 1.525m. Space required for player and passage is 2 x (2.5 x 2 m). Total size for table tennis = 14.1785 x 2= 28.357m^2

All rights reserved by *www.grdjournals.com*

3) Chess board: - let the size of chess board is 0.5m * 0.5m.Space required for player is 2 x (0.5m x 0.5m). Total size for chess board = 0.5 x 2 = 1.0 m^2

- Cost of Game Zone: The cost for room and the cost for playing equipment are carried out separately and then add them to get total cost of construction.

Cost of Game Zone				
Cost of Equipment:				
Sr No.	*Items*	*Quantity*	*Rates/unit*	*Amount (Rs.)*
1	*Pool Table*	*2*	*10000*	*20000*
2	*Table Tennis*	*2*	*50000*	*100000*
3	*Chess Board*	*2*	*1500*	*3000*
Total cost of all the equipment is 123000 Rs.				
Total cost of Room having size of 25m x 18m is 558450 Rs.				
Total cost of game zone = Cost of equipment + cost of room				
Total cost of game zone is 681450 Rs.				

Table 1: Cost of Game Zone

The plan of the game zone designed is given below.

Fig. 4: Plane of game zone

- Theatre

1) Room size required for theatre is 24m x 7m and height of room is 7m.
2) Size of the seat with passage = 1.3 m and total no. of seat = 107
3) Size of the screen 5m x 3m
4) Sound proofing required 1650 ft.

Cost of Theatre			
Items	*Quantity*	*Rates/unit*	*Amount(rs)*
Chair	*107*	*2500*	*267500*
Projector	*1*	*18500*	*18500*
Screen	*1*	*50000*	*50000*
Sound Proofing materials	*1650*	*350*	*577500*
Generator	*1*	*265000*	*265000*
Sound system	*4*	*8000*	*32000*
Security cabin	*1*	*25000*	*25000*
Ticket window	*1*	*25000*	*25000*
A.C. (central)			*250000*
		Total cost	*1510500*
Total cost of Room construction			*13,20,000*
Overall cost of theatre = 28,30,500 Rs.			

Table 2: Cost of Theatre

All rights reserved by *www.grdjournals.com*

The section and plan of theatre designed is given below.

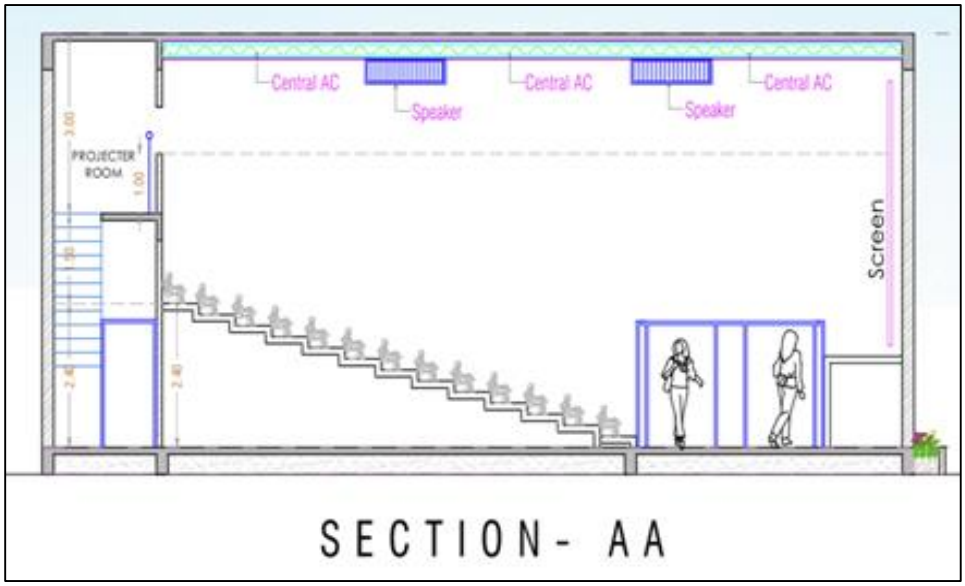

Fig. 5: Plan and Section of theatre

VI. ROUGH PROTOTYPE

- A rough prototype has also been made for clear understanding of the utilized space. It contained a rough model of mini theatre and game zone.

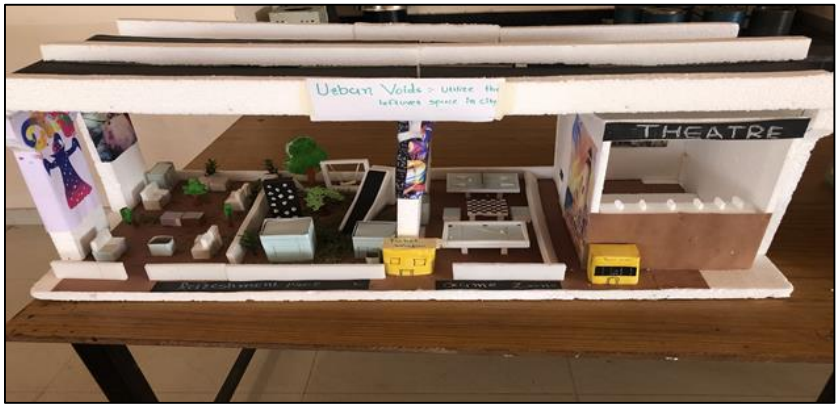

Fig. 6: Rough prototype

All rights reserved by *www.grdjournals.com*

VII. CONCLUSION

An attempt has been made for utilizing the leftover spaces below flyover. These leftover spaces can be converted into recreational area, which will work as an effective public space, although it will be a great catalyst for overall development of the city.

REFERENCES

[1] Ms. Bhaskaran Rekha, Urban void- a “Bypass” urban resource, New Delhi
[2] France Ari Prasetyo, August 2014, Playing Under The Flyover: A Collaborative Creative Community in Bandung,
[3] Md Azree Othuman, Nangkula Utaberta, Imrpovise Overpasses: Study on utilizing space below flyover, IJAES ISSN 0973-4562, volume 10, 2015
[4] Nurulhusna Qamaruz-Zaman, Zalina Samadi, Under the flyovers of Kuala Lumpur, Malaysia, journal of Asian Behavioural Studies, volume 3, number 10, 2013.
[5] Shukla Dipti, 15th September 2016, “Flyovers”- infrastructural barrier or potential opportunity for knitting city fabric.
[6] Seog Jeong Lee, Soewon Hwang and Dongha Lee, Urban Voids: As a Chance for Sustainable urban design, Korea.
[7] Trancik Roger, 1986, Finding Lost Space: Theories of Urban Design, New York.
[8] http://www.wanurbanchallenge.com/award/sector/rec laiming-the-streets-18
[9] http://www.suratmuniipalcorporation.com

All rights reserved by *www.grdjournals.com*