

A Case Study on Redevelopment Plan and Design of Chennai Anna Salai

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ABSTRACT

Proper planning of urban land use is most essential for an orderly and efficient projects lead to changes in land use and help intensify development. The technology of geographic information systems (GIS) has been used to map the existing urban system and to project the consequences of changes. In this project we focus on the major domain of transportation. Hence the road tunnel is proposed to reduce traffic congestion and minimize the accident rate. Metro tunnel runs under the proposed road tunnel. Since the soil type is mostly of rock type, the load bearing capacity of the pavement is more. The tunnel road runs through a length of 1.4 m Street furniture's are also provided bringing back the vintage appearance of Mount road. Bus shelters are proposed in both sides of highway. Basic features like ventilation, lighting, traffic signals, proper medians are also indulged. Heritage buildings like Bharat Insurance Building has to be renovated. The space in front of Kardyl building can be used as public gathering place. Our project is based on two important sustainable development goals-Industry, Innovation and Infrastructure, Sustainable Cities and Communities growth of urban areas. It covers regional land use, transportation coordination, roadway design, safety, public transit, pedestrian and bicycle planning. Transportation planning plays a major role in ensuring sustainable and balanced regional development through inter-city connectivity.

KEYWORDS: Tunnel road, Transportation, Heritage buildings, urban system

1. INTRODUCTION

The act or process of changing an area of a town by replacing old buildings, roads, etc. with new ones is known as redevelopment plan. Urban and regional planning is a spatial design practice that brings limitations to the intervention in natural areas to ensure a balance between population growth, housing, and employment in residential areas. Development plan is a design for the physical, social, economic and political framework for the city, which greatly improves the quality of people living in urban areas. To provide for resource mobilization plans for the proposed development works. As per the census of India 2011, the growth rate of urbanization during 2001-2011 was 31.8 % which was higher than the total population growth rate of 17.6 % during the same period. By the year 2021, more than 432 million people will live in urban areas and this is likely to

increase to 670 million by 2031. A good network of roads, coupled with an efficient public transportation system, contributes to the "working efficiency" of cities through reduction in commuting cost, travel time, traffic congestion, air and noise pollution.

Urban, city, or town planning is the discipline of land use planning which explores several aspects of the built and social environments of Municipalities and communities.

An important challenge for urban planning is to envision and prepare a city development plan, a master plan and a financial plan at the state government level and at local and regional level. Urban design is the discipline that forms the interface among multiple disciplines related to planning of cities including architecture, engineering, transport,

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and environmental planning. Integrated transportation-land use planning is the most important tool available to urban planners to create agglomeration-augmenting, congestion-minimization and resource generating Cities. Annasalai formerly known as mount road, is an arterial road in chennai which is about 13 km long. This project deals with the redevelopment plan for Annasalai (From Bharat Insurance building to peters road junction).

2. PROBLEMS REPORTED



Fig. 2.1 Map view of Anna salai

A. TRAFFIC

Anna Salai is used by over 0.183 million vehicles every day. The Metropolitan Transport Corporation in Anna Salai carries about 14,000 passengers per hour per direction.



Fig 2.2 Traffic Study in Anna salai

B. TRAFFIC STUDY

Anna Salai remains the road in the city experiencing the second most number of accidents annually with one person being injured every 1.13 days. This roads account for almost 14 per cent of the 5,101 accidents that occurred in Chennai in 2010.

C. HAWKERS

Hawkers occupy the pedestrian way in anna salai, so Pedestrians will find it difficult to use.



Fig. 2.3 Hawkers

D. UNSAFE PEDESTRIANS

The pedestrian way remains damaged in anna salai. The pedestrians were mostly affected due to this. This will lead to more accidents.

E. DRAINAGE

Despite being one of the arterial roads in the city, Anna Salai was badly hit during rainfall. It was found that huge trenches were dug with cables criss-crossing it. Rain water mixed with sewage filled the trenches and emanated a foul smell.



Fig. 2.4 Drainage system

F. SUBWAYS NOT IN USE

The subways are not used by the public properly in Anna salai. The rate of people using subways is decreasing day by day. The subways are dirty and not cleaned properly.

G. WASTE DISPOSAL

The streets of Anna salai were dirty and wastes were not disposed of properly.



Fig.2.5 Improper Waste disposal

H. NOISE POLLUTION

Average noise range is about 84 dB. Accepted noise limit is 65 dB

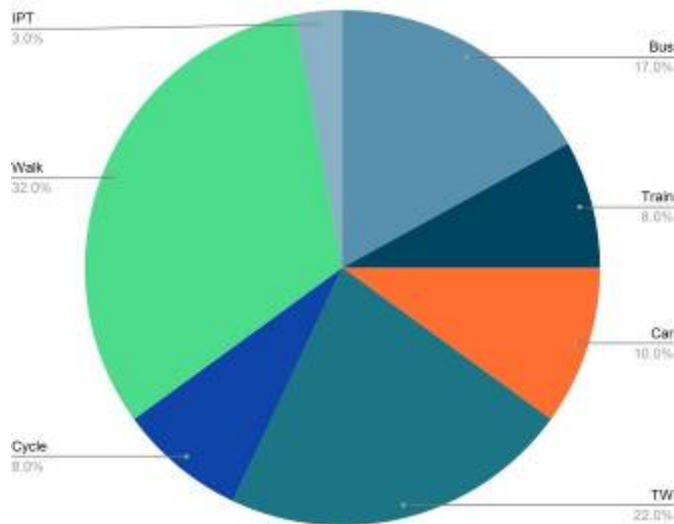
I. UNNOTICED HERITAGE BUILDINGS

Many buildings like Kardyl bilding, Higginbothams, Spencer plaza, Agurchand mansion, thousand lights and

Table 2.1 Intersections with Peak Hour PUC Above 10000

Intersections	Peak hour volume(vehicles)	Peak hour volume(PCU)
Anna salai Vs peters road	18144	18649
Anna salai Vs Binny road	18730	19903
Anna salai Vs General patterns road	13255	12015

Person trips by mode-2010



2026	36263	2.33	757
2027	37100	2.31	837
2028	37950	2.29	850
2029	38811	2.27	861
2030	39684	2.25	873

The population density of the study area is 32077 per km².

3. PROPOSAL

The proposal takes the traffic to subway level. Existing roads are made as walkways for pedestrians. Proper seatings and gathering spaces are given in its style bringing back the historical importance of our site. Make use of unused buildings, empty lands for its betterment. Providing better landscapes reduces pollution and makes visuals better.

The tunnel road is proposed in the given stretch .It involves Construction of road tunnel, providing street furniture, separate bicycle lanes, providing ventilation and lighting in the tunnel. The metro rail transit system’s tunnel is proposed under the road tunnel.

The stretch is about 1.8 km. The major landmarks are Bharat insurance building, Spencer plaza, LIC metro station, Thousand lights metro station. It will greatly reduce the traffic congestion in Anna salai. The road tunnel starts at Kardyl building and ends at ICICI Bank (1.4 m). The gradient of the road tunnel is about 4%(1 in 25). The life expectancy of the tunnel is about 50-125 years. The vertical clearance is about 20 ft (6 m). Proper pedestrian ways are provided. Street lights are provided which can also use solar energy for power.

TABLE 2.2 Air Quality Data In Anna Salai

Pollutant	Minimum	Maximum	Average
NO ₂	3	10	7
SO ₂	30	37	33
OZONE	3	10	7
CO	34	35	35
PM 2.5	28	52	40

J. Population forecasting:

From UN world urbanization prospects

TABLE 2.3 Population Growth Rate

Year	Population	Growth Rate (%)	Growth
2021	32322	2.41	-
2022	33101	2.39	779
2023	33892	2.37	791
2024	34695	2.36	803
2025	35506	2.34	811



Fig 3.1 Proposed view of study area

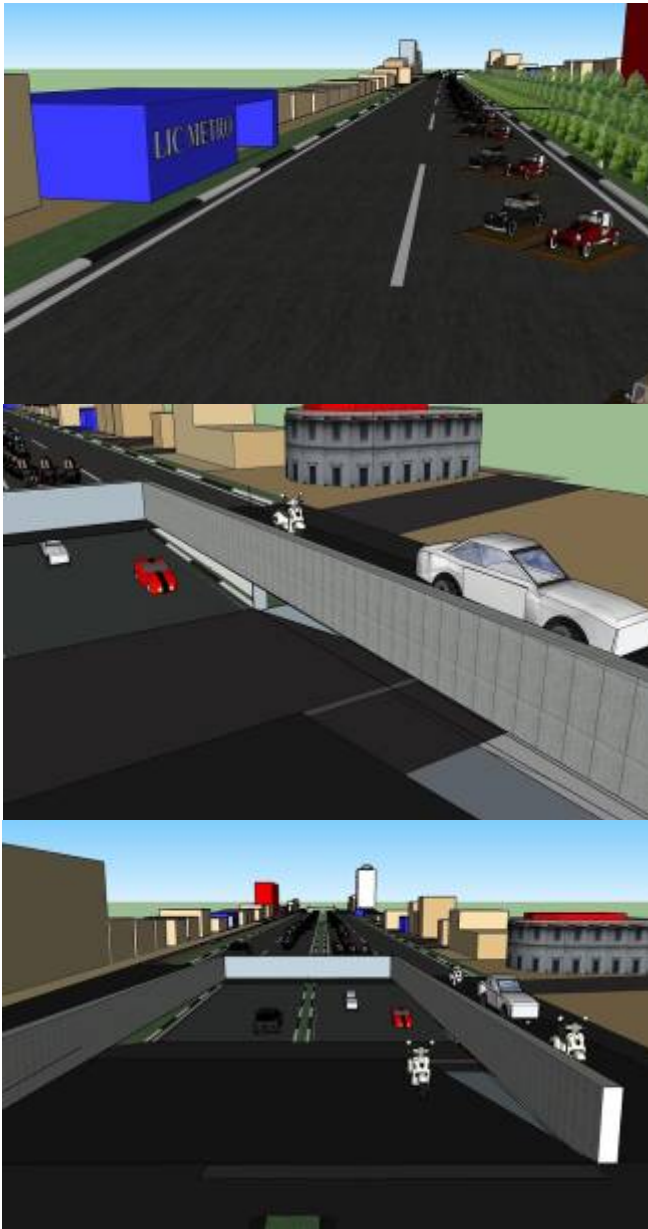


Fig 3.2 Proposed road tunnel features

- The road tunnel is a 2 way 2 lane road. The width of each lane is 3.75 m.
- The total road width is 25 m.
- Jet fans are provided for better ventilation. CCTV monitoring shall also be provided.

Fire-detection and surveillance systems, including heat and smoke monitoring. Traffic control systems. Fire standpipe systems Highway advisory radios (HARs) with flashing red strobe lights to identify emergency exits.

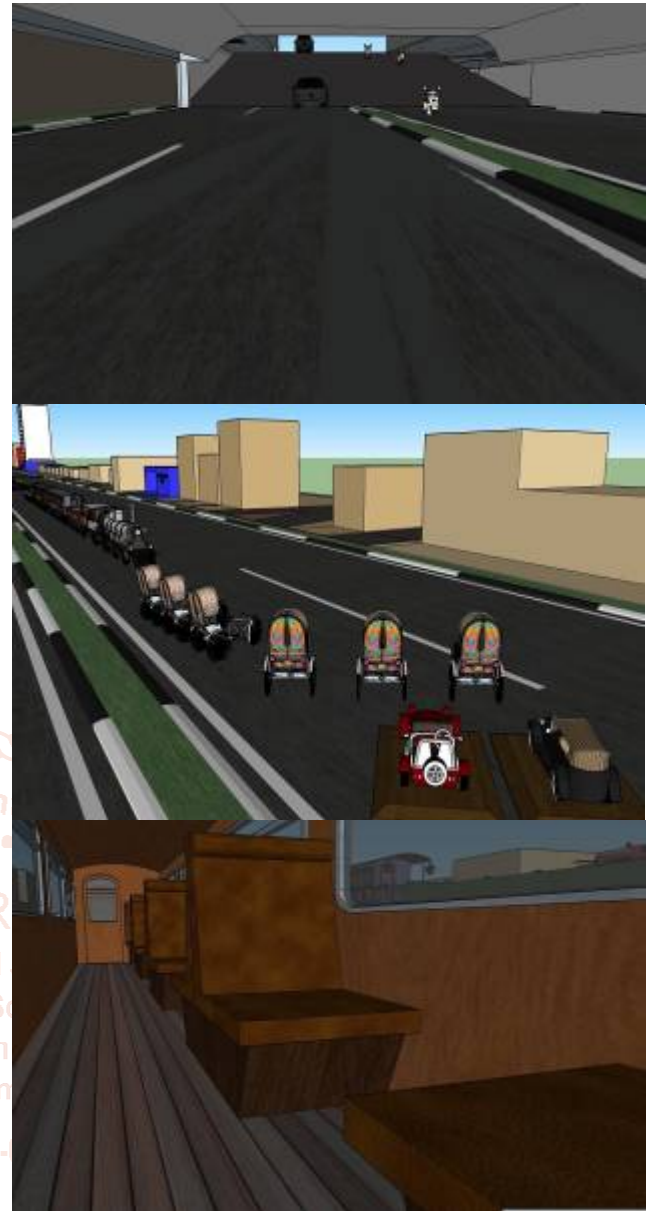


Fig: 3.3 Other features

It includes aesthetic street furniture like tram, vintage vehicles. The tram-like furniture provided in the platform acts as a bus shelter which recreates the old vintage effects of Mount road. As it gives an aesthetic appearance it will be a tourist attraction.

4. CONCLUSION

Urban design is where a city's form and function converge. By implementing well-conceived design principles, communities are not only beautifying their streets, they are encouraging their neighbourhoods to operate better, safer and more efficiently.

The effective urban development leads to positive impact on country's economy and to the society welfare. The urban development must be in balance with social and economic welfare. Thus in this project we have redeveloped the Anna salai area by various measures like proving road tunnel, conservation of heritage buildings, providing aesthetic street furniture's, proper pedestrian ways and bicycle lanes. The Bharat insurance building is restored and conserved as a heritage museum. Public investments must focus on providing access to basic services and infrastructure. Cities need to invest in water, sanitation, energy and garbage disposal.

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