

# Feasibility Study on Construction of Bridge to Control Traffic at Salem Junction

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**ABSTRACT:** People of Salem city are facing acute traffic problem at railway crossing road in Suramangalam (Salem Junction). The main reason for this problem is passage of more number of trains from here which results in closure of railway gate for longer periods of time. People have to wait for several minutes to pass through this railway crossing. Also, an underpass situated near the railway crossing is very small and water gets accumulated under in rainy season. Drainage system for removal of water is not adequate near the underpass. In order to solve this traffic problem, planning and constructing a Flyover Bridge over railway crossing may be a viable option. For planning of bridge, a site visit and traffic survey at railway crossing needed to be carried out. Also for planning of fly over bridge over railway crossing, basic rules and standards in bridge design as per Indian standards code should be considered. Keeping the above points in view, a survey was conducted during this study to explore the possibility of planning and constructing a fly-over bridge at Suramangalam (Salem junction) railway crossing.

**KEYWORDS:** Traffic Congestion Road Side Survey, Traffic Survey, Demography, Bridge, Google Image Bridge, Traffic Counts

## I. INTRODUCTION

Vehicular traffic on roads has grown at an unmanageable rate over the years making travel and time consuming and unsafe. It is in the nature of occurrence that when two roads intersect, junctions appear and this is because both the intersecting roads are in the same horizontal plane. It is at these junctions where traffic from different

directions converge and cause traffic congestion and also accidents. The reason for this traffic congestion is overcrowding at junctions due to the increasing density of traffic from all directions. To avoid junctions and subsequent congestion, flyover or road over bridge were designed which have partially solved the problem of congestion and accidents. Traffic is not only problem of big mega cities but also of small developing cities. Big mega cities are well planned and its transport system is also well - equipped while developing cities are not so well planned. That's the reason that if planning of small city is taken in to consideration it will create big problem. For example if a developing city have residential area divided in different small part and if some part of city is generating employment, providing business and educational facilities for people of about 1/2 population of city than it can create traffic problem due trip generation from different area of city toward that area. Salem being a large city faces the same type situation described above. People of Suramangalam (Salem Junction) location are facing acute traffic problem at railway crossing road in Suramangalam. In order to solve this traffic problem, planning and constructing a Flyover Bridge over railway crossing may be a viable option. Therefore, a feasibility study for planning a Fly-over Bridge over railway junction was conducted keeping in view the following broad objectives: whether a fly-over can be constructed which is cost-effective, minimum demolition and safe and fast movement of vehicle so that of traffic problem at railway junction of Suramangalam road can be solved. The specific objectives of the project were as follows:

- To study traffic at railway junction (Salem).
- To carry out planning of bridge as per Indian standard code IRC: SP-13-2004.
- To prepare plan, elevation and section of bridge.
- To present a model of bridge.

### TRANSPORTATION BENEFITS

### PROJECT SITE LOCATION



The location of the project site is at near Suramangalam Police Station adjacent to the triangular-shaped road at Salem Junction. The triangular-shaped traffic island in suramangalam is all set for a makeover as the corporation has given the no-objection certificate (NOC) to a private company to maintain it. The island is located at the intersection of Salem Junction – Yercaud Main Road, Suramangalam Main Road and Junction Main Road opposite the police station.

### IMPORTANCE OF BRIDGE

- To reduce the travel time.
- To minimize the congestion on roads.
- To reduce the accidents arising day by day.
- A bridge that carries one road or railway line above another either with or without subsidiary roads, for communication between the two.

### BRIDGE

Bridge is a structure that provides passage over obstacles such as valleys, rough terrain or bodies of water by spanning those obstacles with natural or manmade materials.

## II. STUDY AREA

Salem is geologist paradise, surrounded by hills and the landscape dotted with hillocks.

The project area has growing transportation needs and the improvements associated with this project will fulfill those needs. These needs include: 1. An increase in transportation system capacity.  
2. Improved safety.  
3. Meeting the social and economic demands of a growing population.  
4. Improved transportation system linkage.  
5. Improvements in facilities for alternative modes of transportation.

The name Salem appears to have been derived from sela or shalya by which the term refers to the country around the hills. Salem district as a whole has only 10,133.7 km. of road, out of which 214.6 km are cement concrete roads, 5098.1 kilometers are bituminous surfaced road and the remaining 4821 kilometers are water bound macadam roads. The unsurfaced road of 2352.7 kilometers also exists in the district. Salem corporation has about 748.13 kms. Of surfaced road under its control. The width of road ranges from 3.5m to 14.0m in the major road network excluding the lanes and small roads. It is situated at the trijunction of Bangalore, Trichirappalli, and Chennai roads. The city is located at 11 40' North and 78 10' on the East. The general topography is plain. The city is surrounded by the hills viz the Shervaroy's and Nagarmalai on the north, The kanjamalai on the west, The Goodamalai on the east. Salem is the fifth largest city with a population of 7.54 lakhs (2011) in tamilnadu. The population in Salem has growth at a rate of 14 percent per decade between 1911 and 2011. Fast growths in population and vehicles have caused congestion in roads for movement of passengers and good affecting economic development.



Google Image of the Study Area



Traffic Congestion in the Study Area



Accident Statistics at Salem 1994-2017

### III. CONCLUSION

In order to solve the traffic problems at Suramangalam near Salem railway junction, construction of a fly-over bridge was thought appropriate. A survey of the site was conducted for making a design of the proposed fly-over. After this, the design of the bridge was made using the data collected and obtained from various other sources. To minimize the accident by construct flyover and smooth traffic flow. The aesthetic view of flyover is increase view of city and increase the land value near the intersection. It is very clear to in urban area increasing the population and also increasing the no of vehicle it lead to traffic congestion. At suramangalam intersection occur number of accident, and traffic delay for this problem construction of flyover is needed at place.

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