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# Serviceability of Gandhipuram Flyover - Coimbatore

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***Abstract*: Flyovers are constructed to allow the free flow of the vehicles thereby reducing the congestion of the traffic in the area. They may be constructed at a higher level than the existing roads where the traffic intensity is much more than the designed one. This paper is a study about a flyover, constructed in 2017 and was subjected to a traffic study to assess its serviceability. A traffic survey was conducted during prescribed "Peak hours" by the Highway Department. The traffic survey revealed that around 70% of the vehicular traffic used the original roads and the remaining vehicles used flyover, which is not a big improvement considering the huge investment of the project. This paper also some suggestions for implementing better solutions to improve traffic like Diverging Diamond bridge concept, shifting of town Bus Stand and people's opinion.***

***Keywords*: Traffic Survey, Peak Hours, Feasibility study**

## I. INTRODUCTION

Flyovers may denote an overpass or a high-level road bridge that crosses over a highway intersection. As the traffic on the road goes on increasing and we do not have any space left in both the dimensions, then the only option left will be to go to the third dimension and that is done through flyover construction. In the case of flyovers, the main road is used for fast traffic, which is made to pass underneath. Thus, the traffic pass at two different levels .This will result in easy traffic flow of agricultural goods and industrial goods without traffic congestion, flyover bridges is essentially to overcome the traffic congestion.

## II. METHODOLOGY

### A. Construction of flyover in Coimbatore

The Gandipuram road is one of the most congested areas in Coimbatore, which will see hundreds of vehicles every day. The reason is the locality is home to many textile showrooms and local town bus stop. The flyover was proposed to ease the traffic in these regions and to improve the conditions. Phase 1 is the connection between Nanjappa road and Textool Road while Phase 2 will connect 100 feet road and Avarapalayam Junction, which is still under construction. The flyover was made up of 1.75kms in length constructed with 54 spans.

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The initial plan of the flyover was a connection between the two phases and the subsequent plan lead to flyover constructed one over the other. This meant that the vehicles cannot access the other economically important areas below the bridge. The opinion that the local and state government erred in the planning stage is a very primary one and this paper describes the reasons for the same.

### B. Consultation with Highway Department

Inputs from the highway department were provided for the traffic survey. Assistant Divisional Engineer was consulted for the getting information like peak hours of vehicular travel, location points for survey.

### C. Traffic Survey

The traffic survey was done in four different locations as shown in Fig 1.

1. Entry over the Flyover from Nanjappa Road
2. Entry underneath Flyover from Nanjappa Road
3. Entry over the Flyover from Textool Road
4. Entry underneath Flyover from Textool Road

The above points were selected for the survey since they will be useful for getting the vehicular data which using the flyover on both sides as shown in Fig 2. The peak hours were identified as 9 – 11 AM in the morning and 4 – 6 PM in the late afternoon.

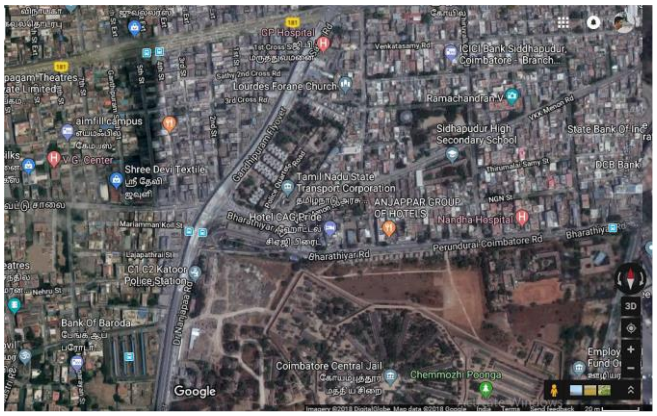


**Fig 1. Satellite image of the location of th Phase 1 flyover constructed between Dr. Nanjappa Road and Textool Road**


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**Fig 2. Traffic survey taken during the peak hours**

The manual survey was done a team of four people using a mobile application named the Tasbeeh Digital Counter, which would count one vehicle for a single tap. Two people stood at each end of the bridge and would use the mobile application for surveying the traffic.

## III. RESULTS AND DISCUSSION

The traffic data was collected by using the mobile application for seven consecutive days in the peak hours mentioned above and the results were tabulated in Table 1. The results indicated that vehicles used the road beneath more than the flyover in both the directions. Consequently, the underlying existing road had more traffic and the whole purpose of the flyover was flawed.

**Table 1**: Traffic survey data

| Place | 9.00 to 11.00 AM | 4.00 to 6.00 PM | Total |
|---|---|---|---|
| **Dr Nanjappa Road Up** | 12,647 | 15,311 | 27,958 |
| **Dr Nanjappa Road Down** | 28,375 | 47,933 | 76,308 |
| **Textool Road Up** | 20,180 | 18,036 | 38,216 |
| **Textool Road Down** | 40,554 | 25,064 | 65,618 |

**Dr Nanjappa road Up indicates the usage of flyover while Dr Nanjappa road down indicates the usage of the road beneath the flyover. Similarly, Textool road up indicates the flyover and Textool road down indicates the road beneath the flyover.**

The vehicle count from Dr. Nanjappa Road (Road beneath the flyover) and flyover over the seven days is presented in Fig 3.

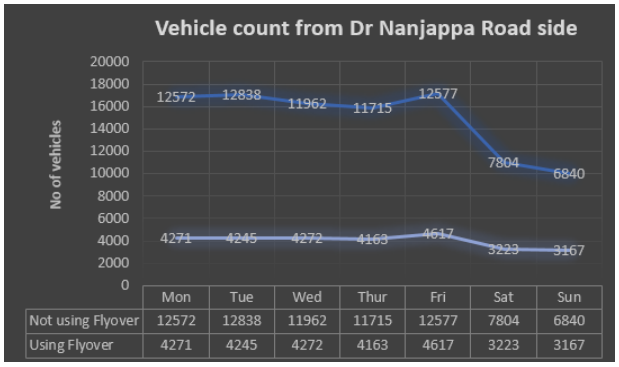


**Fig 3. Vehicle count using and not using flyover from Dr. Nanjappa Road side**

The graphs shows slightly increasing trends for vehicles using the flyover and using the road beneath until friday while the count decreased over the weekend. The reason for the same would be that saturday and sunday would be day off for companies.

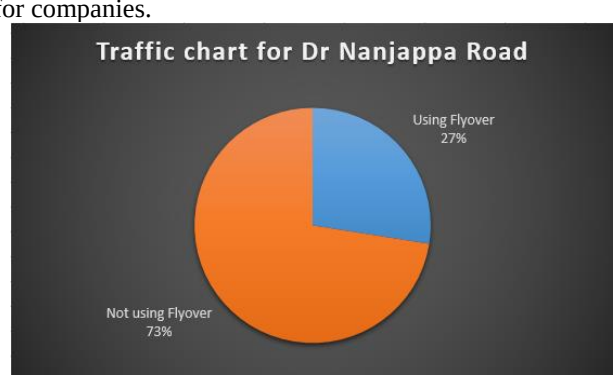


**Fig 4. Traffic chart for Dr. Nanjappa road**

The total percentage of vehicles using the flyover on Dr. Nanjappa road was found to be paltry 27 percent while 73 percent used the road beneath the flyover (Fig 4).

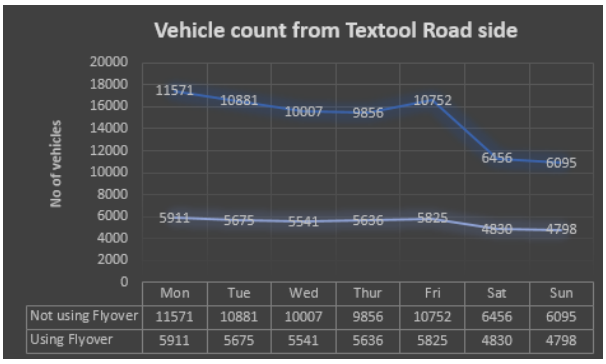


**Fig 5. Vehicle count using and not using flyover from Textool Road side**

The vehicular traffic on the other side of the flyover (Textool road) was found to have improved usage. The flyover usage rose to about 37 percent while the remaining 63 percent used the road beneath as shown in Fig 6. The trend of more vehicular usage during the weekdays was also seen on this side of the flyover also (Fig 5).

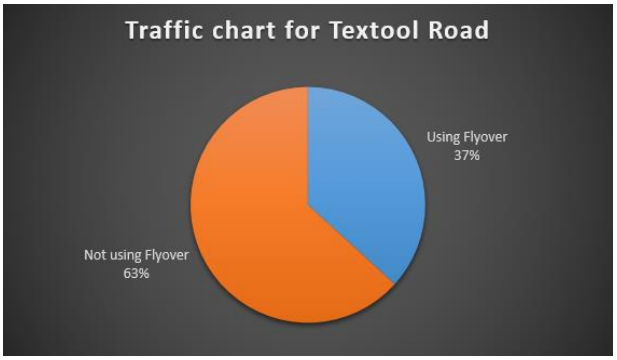


**Fig 6. Traffic survey data for Textool road**

The traffic survey provided vital information about the usage of the flyover. The reasons for the flyover not being used as initially intended could be


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- The location of the flyover, local bus stand which is in the middle of the entire flyover.
- The entire span without intermediate exits (initially provided but changed due to political reasons)

## IV. CONCLUSION AND RECOMMENDATIONS

The flyover was constructed to reduce the congestion and traffic but the above results show that it was only partly successful due to the reasons mentioned in the results section. We would like to recommend a few suggestions which could be useful to improve the traffic.

**A.** Diverging Diamond Bridge Concept – Bridge with connections in the intermediate positions to join economically important areas with the flyover

**B.** Shifting the location of local bus stand beyond the flyover so that the buses could use the flyover more.

**C.** The opinion of the people need to taken into account for such projects and this will help to know the mindset of the people. The government could be more transparent with the planning process without affecting the safety of the project.

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