

EFFECT OF INACCURACY OF TRAFFIC GROWTH RATE IN A HIGHWAY PPP PROJECT - A CASE STUDY

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ABSTRACT

Forecasting the traffic is an important element for planning and design of infrastructure facilities. Estimation of traffic growth rates is needed to decide suitable development strategy and assessing the financial viability of the project. This paper represents a case where traffic growth has failed to meet the approximations done by the Concessionaire before commencement of the project. Due to inaccurate calculation of expected toll revenue, the entire project has become financially non viable which ultimately led to surrender of the project and a tremendous loss to the public due to a potential delay of 4 years in project completion. Such delay can be avoided with verification studies and validation of traffic studies by a competent technical authority.

Keywords : BOT , Highway, NHAI , PPP ,Traffic Growth Estimation.

I. INTRODUCTION

Major initiatives at policy level have been undertaken by the Government to attract foreign and domestic private investments. To promote participation of the private sector in construction and maintenance of National Highways, few Projects are floated on Build Operate and Transfer (BOT) basis to private agencies. After the concession period , which can range up to 30 years, the road project is to be transferred back to NHAI by the Concessionaries.

Traffic is the prime source of revenue for every BOT project and it is very critical to assess existing traffic and give a projection model of traffic growth over the concession period of the BOT project. As of now various projects are stalled due to reasons mostly being non viability of project on the decided finance structures and contract provisions. This non viability is due to gap between present tollable traffic count and projected traffic count at the start of the project planning.

Traffic gets generated as a result of several inter-connected factors, encompassing the prevailing socio-economic conditions such as population, gross domestic product, vehicle ownership, sectorial economic activities etc. Traffic growth estimation therefore requires detailed studies and investigations concerning these factors as well as the magnitude and characteristics of the existing traffic flows and its past trend in respect of nature, composition and growth.

II. PROJECT BACKGROUND

The project road under study is a section of National Highway-6 in the state of Maharashtra. The project corridor starts from end of Amravati Bypass at km 166+725 of NH-6 on East Side and ends near Jalgaon at km 441.95 of NH-6 on West side. The total length of project road is 275 kms. The project corridor passes through important places like Akola, Khamgaon, Malkapur, Bhusawal, Jalgaon, Dhule, Sakri and Navapur under Amravati, Akola, Buldana, Jalgaon, Districts of Maharashtra.



Fig 1. Map Showing the Project Corridor in the State of Maharashtra

The Project was awarded for 19 years concession period to L & T after successful bid of annual premium of Rs 131 Crore to be given to the NHAI with 5% increment every year. This aggressive bid was done on the basis of substantial amount of revenue expected from the toll collections. The contract agreement was signed in June 2012 and the project was slated to be started by 2012 end.

III. TRAFFIC GROWTH REPORT AND ESTIMATES

Table 1. Growth rates (in %) - As per Detailed Project Report

Sr. No.	Period	Car	BUS	LCV	2-A Truck	3-A Truck	MAV
1	2013-17	8.00	7.30	11.20	5.00	6.4	6.4
2	2018-22	7.30	6.60	10.80	5.00	6.2	6.2
3	2023-27	6.60	6.00	10.40	5.00	5.9	5.9
4	2028-32	6.10	5.50	10.00	5.00	5.7	5.7
5	Beyond 32	5.80	5.30	10.80	5.00	5.6	5.6

These are the Growth Rates adopted by the DPR consultant at the stage where project was being evaluated for viability purposes. These growth rates are modest but also rationally correct due to the slack in the infrastructure

sector in the country and slow growth of traffic in that period. The DPR consultant had recommended a bid amount of 10-15 Crores in premium or less but the winning bid was of the amount 131 Crore.

Table 2 : Growth Rates (in %) as adopted by Concessionaire L & T

Sr. No.	Period	Car	BUS	LCV	2-ATruck	3-A Truck	MAV
1	2013-17	5.00	4.00	8.00	3.00	6	20
2	2018-22	9.00	5.50	10.00	-1.00	8.5	10
3	2023-27	9.00	5.50	10.00	-1.00	8.5	10
4	2028-32	9.00	5.50	10.00	-1.00	8.5	10
5	Beyond 32	9.00	5.50	10.00	-1.00	8.5	10

These high rates adopted by the Concessionaire were due to inappropriate traffic growth projections and also for justifying the bid which was very highly quoted.

IV. EFFECT OF MISCALCULATION

The result of such varied traffic growth approximations has resulted the contractor to realise that the project cannot be executed on the current price or costing and has forfeited the project. The estimated toll collection from the current traffic volume was around 27,972 Crore which was way less than the required 37,056 Crore collection to make the project financially feasible. As the difference in growth rates of actual and anticipated was quite high , gradually year by year the difference compounded and increased to 54% at the end of the concession period. The net resultant difference in total collection between DPR (actual) and anticipated by L&T is about 9,083 Crore. This huge amount hampered the economic viability of the project.

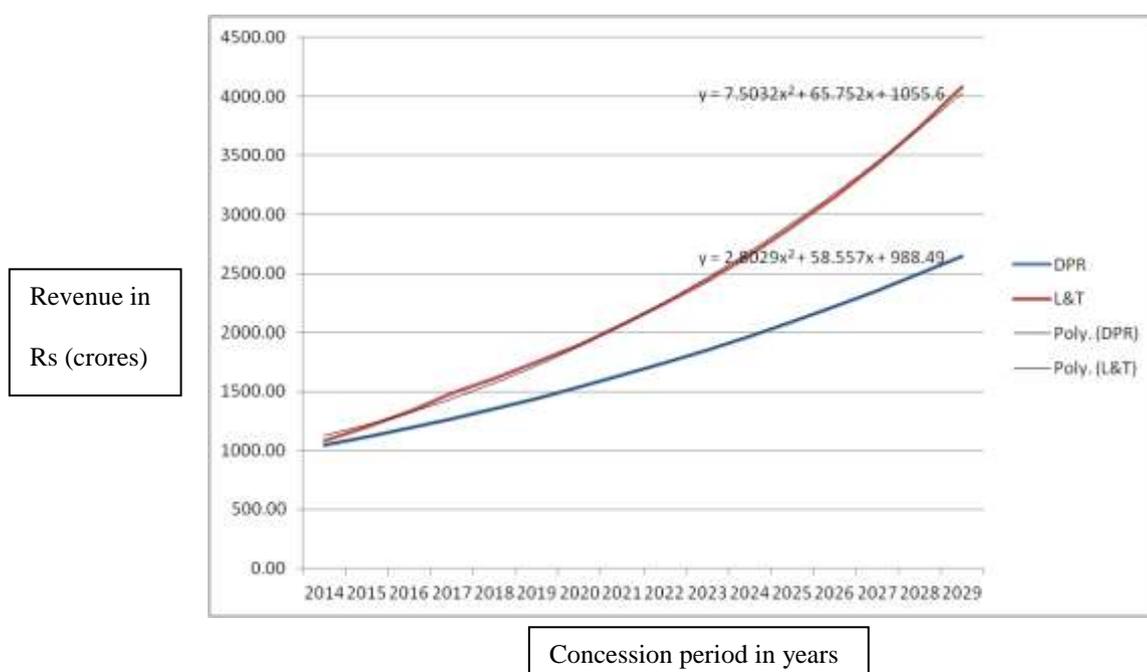


Fig 2. Plot comparing DPR and L&T estimated revenue

The Polynomial Plots of Revenue collection over the years was compared as depicted in Fig 2. The Y axis shows revenue amount in Crores and X axis shows the concession period.

$$\text{DPR equation : } y = 2.8029x^2 + 58.557x + 988.49$$

$$\text{L\&T equation : } y = 7.5032x^2 + 65.752x + 1055.6$$

where x and y are horizontal and vertical co-ordinates respectively.

If the project would have been executed then the company would not have been in a position to recover the losses because the quantum being so huge. The Project stated to start in Oct 2012 is now up for retender and would likely start by 2016 delaying the completion of project to around 2018-2019.

V. CONCLUSION

The tremendous delay of the project is majorly due to inaccuracy in traffic growth projections where apart from the Concessionaire, the Government body NHAI failed to cross verify the submission to find reasonable solution to such aggressive bidding. Monetary loss due to the delay is over 10,000Cr as cost of project has increased and keeps increasing until the construction starts and the subsequent bidder may not quote premium of such high value (3000Cr over the entire period) and this loss has directly impacted the common man as tax payers money is used for government projects. Moreover the facility of National Highway on such an important trade route has various indirect impacts which harms the economy of the Nation.

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